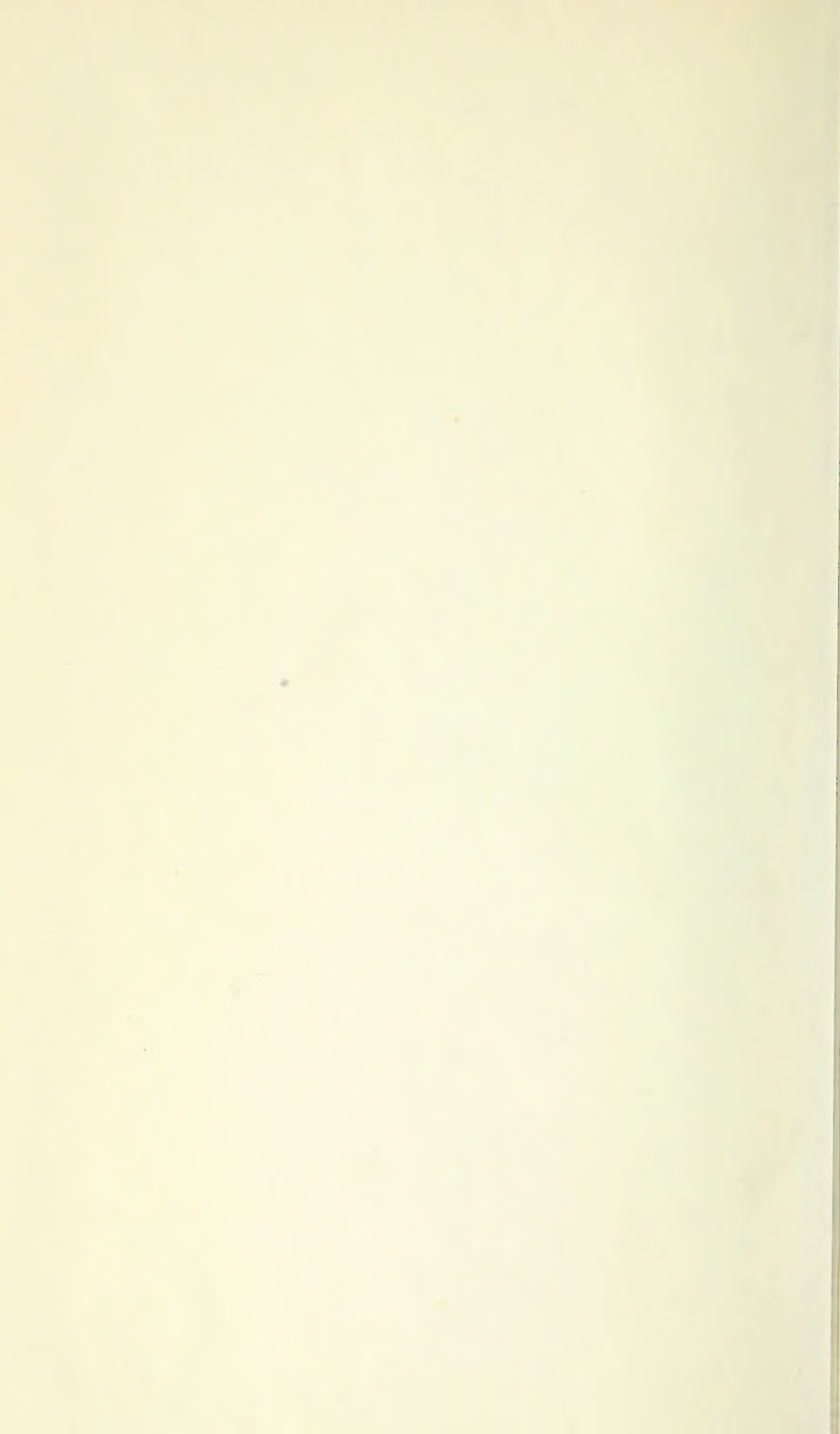
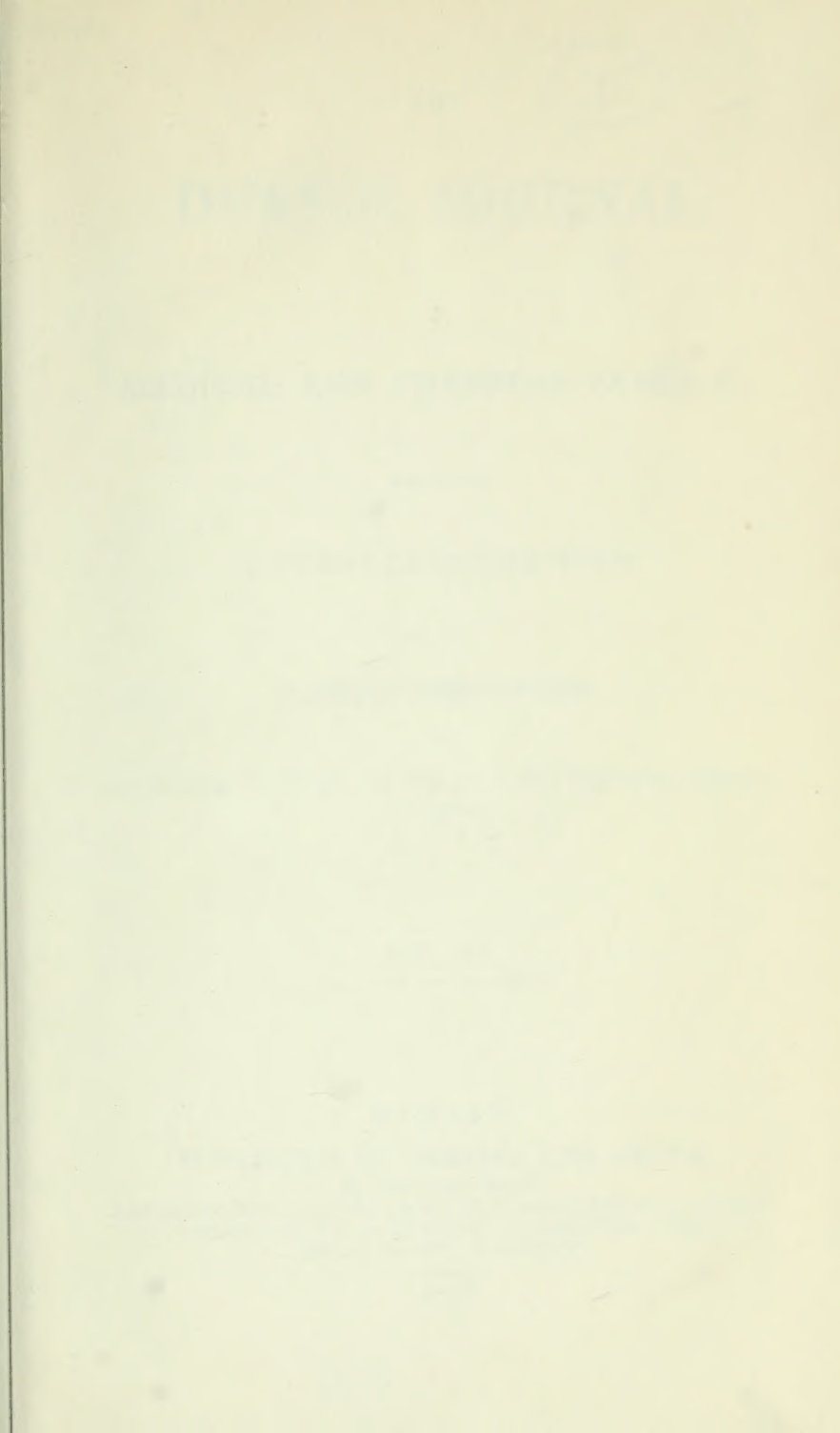




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THE

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DUBLIN JOURNAL

OF

MEDICAL AND CHEMICAL SCIENCE;

EXHIBITING

A COMPREHENSIVE VIEW

OF THE

LATEST DISCOVERIES

IN

MEDICINE, SURGERY, CHEMISTRY, AND THE COLLATERAL
SCIENCES.

VOL. VI.

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AND THE COLLEGE OF PHYSICIANS

VOL. VI

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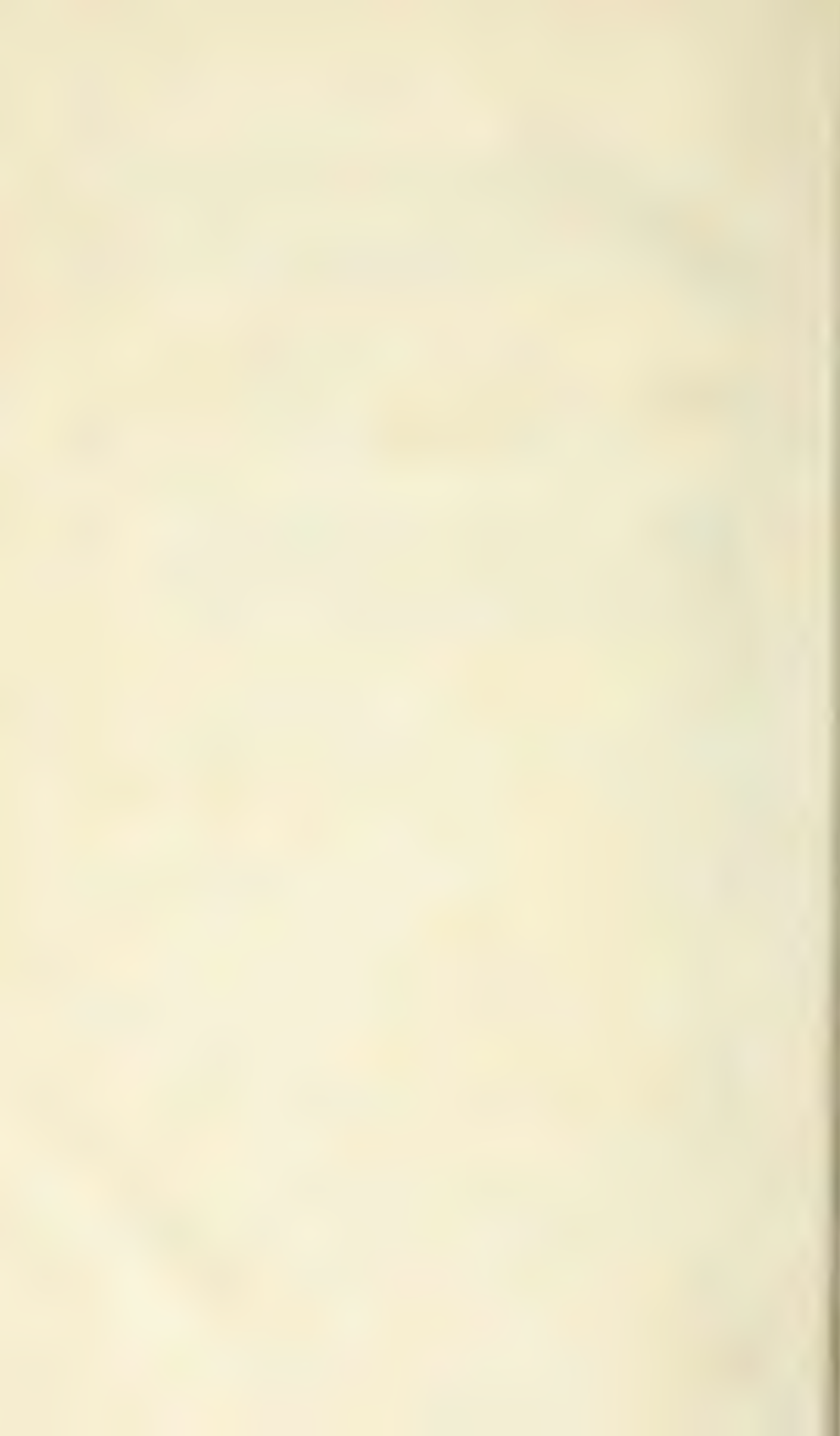
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1 SEPTEMBER, 1834.

PART I.
ORIGINAL COMMUNICATIONS.

ART. I.—*On Hydrocele of the Neck, with Cases and Observations.* By JAMES O'BEIRNE, M. D., Surgeon Extraordinary to the King, One of the Surgeons of the Richmond Surgical Hospital, House of Industry, Dublin, &c. &c. &c.

IT is now nearly twenty years since Professor Maunoir, of Geneva, described a disease to which he gave the name of hydrocele of the neck, and which, although essentially different in its nature, and requiring a very different mode of treatment, bears such a resemblance to bronchocele or goitre, that it has constantly been confounded with the latter disease, and treated accordingly. The manuscript memoir in which he described this disease, was read at the Royal Institute of France in 1815, and afterwards transferred to the Academy of Natural Sciences; by which body the late celebrated Baron Percy was selected to report upon its merits. It was not, however, until April, 1817, that the Baron presented his report, which proved highly unfavourable to Professor Maunoir's opinions and

practice. In 1825, the latter published, for the first time, his memoir, with the whole of the unfavourable report made thereon, and a most able and satisfactory defence of his peculiar views on the subject.* But it would appear that, as too often happens, the authority of a great name, aided by bold and specious objections, proved more powerful than either the strongest facts or arguments; for, after considerable research, I have failed in finding even the slightest notice of this memoir in any subsequent French or English work. So little, indeed, does it appear to be known in both countries, that Delpech† and Lawrence,‡ who, between them, have related three cases which appear to have been examples of the disease, not only make no allusion to it, but, by employing incision in the treatment of these cases, would seem to show that they were unacquainted with its existence; for it is only natural to presume, that, if they had known the equally certain, and less dangerous and disfiguring mode of treatment by seton, so successfully adopted by Maunoir, they would have given it the preference.

About four years ago, the three memoirs to which I have already referred came accidentally into my possession, and the singularity of its title induced me to read that “*Sur, l’Hydrocele du Cou.*” Since that time, accident again favoured me by enabling me to observe three striking examples of the disease, all of which displayed the utter fallacy of Baron Percy’s objections. According as they presented themselves, accurate notes and drawings of these cases were taken with a view to publishing them, at some future day, and giving such a general account both of the memoir in question and the whole subject, as might prove acceptable to the profession. That time is now come, and I trust that, aided by the two annexed lithographic plates, I shall be enabled to carry my intentions into effect.

* *Mémoires sur les Amputations, l’Hydrocele du Cou, et l’Organisation de l’Iris.* Par J. P. Maunoir, aîné, Prof. D. C. Geneve et Paris, 1825.

† *Chirurgie Clinique de Montpellier*, t. ii. p. 79--87.

‡ *London Medico-Chirurgical Transact.*, vol. xvii. p. 44 et seqq.

According to Professor Maunoir, the disease has been often observed without its true nature being known; as may be seen in treatises on tumours, and from one example detailed by Heister, and three cases quoted by Plouquet. He declares also, that all the cases of it which he has seen, had been confounded with and treated as goitre, by numerous members of the profession. The disease consists in the formation of serous cysts, commencing very small at some point of the side of the neck, and gradually increasing, for several years, to such a size as to occupy the whole of the front and of one side of the neck, and seriously impede respiration, deglutition, and speech.

The tumour so formed conveys to the touch a distinct sense of fluctuation, and contains a fluid of either a limpid, a reddish, or a dark coffee colour, and coagulable by heat. In the great majority of instances, it exists independently of any enlargement of the thyroid gland; and, in his fourth case, it was situated behind the angle of the lower jaw, and, of course, quite removed from this gland. But he has, in two instances, observed the contrary; and the second of his cases, in which the gland, enlarged and indurated, formed one-eighth of the whole tumour, is an example of this complication.

With respect to the treatment of the disease, the learned Professor's opinions and practice are these:—"Although," he says, "there may be great affinity between encysted tumours in the neck and hydrocele of the tunica vaginalis, yet it appears to me that in hydrocele of the neck, the cyst is more dense, and more difficult to be excited to adhesive inflammation. Accordingly, its treatment should not be directed by analogy, and it is not proper to have recourse to the cure by injection, although it seems, at a first view, to be the best. I wished to try it, and have been obliged to renounce it as a bad plan, and one not free from danger. An injection which is not very stimulating, will effect nothing, or almost nothing, on a very thick, and, in general, an old cyst. If a very active injection be employed, it will cause great pain, and give rise to very alarming spasmodic

symptoms. Moreover, I have to observe, that sometimes enlargement of the thyroid gland complicates the treatment. In that case, the object is not merely to produce adhesion of the walls of the sac; it will be necessary to employ a mode of cure by which we may succeed at the same time in resolving this gland, when it projects into the tumour, as I have seen in two patients." As to laying open the tumour by incisions, as practised by Heister, or extirpation of the whole or of only a part of the cyst, he condemns these operations as being serious, difficult, and calculated to prolong a cure, by producing a large wound, and one of a kind very slow in cicatrizing. In short, the treatment which he has been led to adopt and recommend consists in puncturing the tumour, and, after evacuating its contents, passing a seton through it, in the direction of its longest diameter. By this plan, a fresh accumulation of fluid is prevented, the adhesion of the walls of the cyst is insured, and the thyroid gland, when it happens to be enlarged, is gradually reduced to its natural size.

He relates four cases, all of which are so generally interesting, that I shall here give them in a comparatively abridged form.

CASE I.—A washer-woman named Martin, aged 49, still menstruating, with a spherical tumour on the front and left side of the neck, as large as an infant's head, presented the first example of the disease that the Professor had seen, read, or heard of. Originally this tumour had been very small, but increased in quite an insensible manner. It did not force her head to incline to the left, but to the right side, and formed a sort of cushion for her head to rest upon. She had taken burnt sponge, and many other boasted remedies for goitre, but without any benefit. Difficulty of breathing and swallowing came on, and increased in proportion to the growth of the tumour. One day, while washing at the river side, she threw up a very great quantity of blood, fainted, and was supposed for some moments to be dead. The hæmoptysis and oppression continuing, and

the swelling being felt to contain a fluid, a trochar was passed into the most prominent and fluctuating part of the tumour, and gave exit to a pint and a half of a deep brown liquid, which coagulated by the application of heat. Complete relief ensued. On the following day, the swelling had returned to its former size ; but fluctuation was less manifest, for infiltration had taken place between the tumour and the skin.

At the end of 15 days this infiltration had disappeared, and the cyst was punctured by a trochar, and, after being emptied, filled with warm red wine and a small portion of alcohol. This injection, although retained but for a few moments, caused great pain and suffering. Swelling, redness, trismus, and increasing pain, on the following day : leeches, poultices, aperient medicines, and opium, ordered. An abscess, external to the cyst, opened and treated in the ordinary way, until it healed. A third puncture made into the upper part of the cyst by a sharp-pointed bistoury, and giving exit to as considerable a quantity of fluid as at the second. A button-pointed probe then introduced into the opening, and passed until it became prominent at the most inferior part of the tumour ; the point of the probe then cut upon, and the instrument withdrawn, leaving in its place a single thread. This thread frequently renewed ; no accumulation of fluid. A seton of ravelled linen passed, and caused abundant suppuration. This seton continued for six weeks, and then removed by the patient, on account of interfering with her ordinary occupations. Both openings fistulous for some months ; the upper first closed ; and in the year 1813, when she was 63 years of age, her neck was very slender, and her health robust.

CASE II.—Monsieur C. of Vevay, aged 40, had for many years a tumour situated on the front and right side of the neck. This tumour extended from the chin and lower jaw to the sternum and clavicle ; and in the greater part of its extent, there was a manifest sense of fluctuation, but points corresponding to the thyroid gland appeared to be hard and prominent. The swelling increased daily, became fatiguing from its weight, and

ultimately caused difficulty of respiration and speech, and occasionally attacks in which he seemed to be on the point of expiring. A puncture made into the upper and left portion of the tumour, and a pint of limpid, amber-coloured, and perfectly inodorous fluid evacuated. This evacuation reduced the tumour to one-eighth of its size, the remaining portion being formed by the thyroid gland in an enlarged and indurated state. A blunt probe now passed into the opening in the sac, and carried down to the inferior and anterior portions of the tumour; the point of the probe cut upon, and a single thread passed, in the usual way, as a seton. Great freedom of respiration, and in moving the head, instantly followed the complete evacuation of the tumour. Next day, a fresh accumulation of fluid, but much less in quantity, and of a fetid, sanious kind; some fever; stomach deranged. Hippo, followed by infusion of bark, and Spa and Seltzer waters employed, and restored the patient to his ordinary calm state. Pieces of linen, gradually increased in size, and smeared with simple digestive ointment, introduced as setons; injections of plain and hydrosulphurated water, and decoction of bark, with honey, thrown into the sac. Discharge less in quantity, and more purulent; the extent of the cavity greatly contracted; and the thyroid gland diminished in size. In a few months the patient's health was completely restored, and his neck became of its natural size.

CASE III.—Mademoiselle T. D., aged 20, having for many years a large tumour on the front, and a little to the right side, of the neck, had been subjected to all the known modes of treating goitre. This tumour was of enormous size, and consisted in a great degree of fluid. The least movement brought on cough, and attacks of suffocation. Her parents and friends refused to permit a seton to be passed, but a puncture with a trochar was made in the most depending part, and a cupful of fluid, resembling infusion of coffee, was drawn off. The canula was then withdrawn, with a view of retaining the rest of the fluid, and enabling a second puncture to be made and a seton

to be passed. The tumour was very little diminished; the wound was then covered with adhesive plaister, and a roller applied with moderate firmness. After passing some hours in a very quiet state, she indulged too freely at dinner, and in the evening, felt oppressed in her breathing, and the tumour became quite black. It was evident, in fact, that the contents of the sac had passed into the subcutaneous cellular membrane. She passed the night badly, and could scarcely swallow a few drops of an anodyne draught. In the morning, great difficulty of respiration, and total incapability of swallowing; the parts surrounding the tumour so swelled that the neck was raised to the level of the chin and lower jaw, with which it seemed to form one continued pillar. The whole of the upper part of the thorax was also infiltrated, and the alteration of the voice and dyspnoea were such as to lead to the belief that the effervesced fluid had penetrated into the internal cellular tissue of the trachea. In the course of the day, however, all these symptoms gradually diminished in severity, and the swelling was considerably reduced towards evening. She passed a good night, and on the following morning, deglutition and respiration were free. On the fourth day from the operation, the original tumour was diminished by one half; the infiltration and black colour of the skin had disappeared, and the patient was in excellent health.

On the 30th of January, 1812, that is, after about six weeks had elapsed, the tumour was as large and as distressing as ever. A hydrocele trochar, with a flat elastic canula, was passed into its most depending part, and two pints of a dark brown fluid, coagulable by heat, were discharged. On emptying the tumour, the thyroid gland was found moderately enlarged. A blunt probe, armed with a single thread, introduced through the canula, made prominent at the upper part of the cyst, and there cut upon until it could be withdrawn, and the thread left as a seton. For some days, nervous symptoms appeared. The two little incisions contracted so much, that the thread could not be

moved backwards and forwards but with great difficulty, and such as to create a suspicion of its being lodged in the tissues of the walls of the cyst, which it had cut in gliding, and of having thus left the cavity of the tumour. The silk thread withdrawn, at the instance of her parents, and in order that a fresh accumulation might permit a puncture to be made by a bistoury, (instead of the trochar which had been found so ill-suited,) and enable a cotton wick to be passed as a seton. The tumour soon regained its former size, and the oppression returned. The necessity of this operation repeatedly urged, but as often delayed from some frivolous pretext. The Professor sent for in great haste, on the 16th of April, 1812, and found her with complete loss of sense and motion, slow and stertorous breathing, cold extremities, dilated pupils, and no pulse. No person being at hand to assist in the proposed operation, the tumour was punctured by a hydrocele trochar, and a pint of dark brown fluid discharged. Immediately pulse, respiration, and in short, animation were restored; but permission to pass a seton could not be obtained. On the 7th of May, the size of the tumour required that it should be again punctured. On the 24th of June, she complained of violent pains in the head, great suffering and oppression. Another puncture made in the swelling, and a quantity of fluid, mixed with purulent matter, discharged. 25th, pains returned; astringent applications; increased enlargement of the neck; distress and oppression alarming. Six leeches applied, and the patient well purged with castor oil, without any relief. 27th, tumour punctured, and a lesser quantity of fluid, but more mixed with pus, discharged. 21st of July, symptoms severe, and increasing so much in violence, as to require another puncture, which was rendered difficult by the thickness which the infiltrated cellular membrane had acquired, and consequently, the increased depth at which the cyst was placed. A silk thread, and subsequently, a large seton inserted; abundant fetid suppuration; gradual contraction of the sac; an abscess formed and opened at the inferior and lateral part of

the neck ; a fistulous opening for some months at this point, and at length healed by an injection of a weak solution of sulphate of copper. Seton removed ; tumour completely dispersed ; and recovery perfect in all respects.

CASE IV.—In the autumn of 1813, a young man, of the Pays de Vaud, of athletic stature and constitution, applied for advice respecting a tumour situated inferior to the left parotid, occupying the whole of the cavity beneath the angle of the lower jaw, and which had existed for eight years. This tumour being felt of a scirrhus hardness, and its upper part alone appearing to be attached to the parotid gland, its extirpation was decided upon. 16th September, the tumour exposed by raising a triangular flap of the skin, the apex of which flap was below and the base above. The incisions made as closely as possible to the sac, in order to avoid a number of vessels on its surface. In doing so, the sac was unintentionally cut into, although thick, and several ounces of limpid fluid were evacuated. The tumour being thus found to be encysted, and not solid, the whole of the anterior of the cyst, amounting to two-thirds of its whole size, was removed by a circular stroke of the bistoury. What remained of the sac in the bottom of the wound, was easily separated from the deep parts to which it adhered ; the flap was then laid down, united by suture, and a bandage applied. Union by the first intention took place, but, in consequence of the ligatures not coming away, the wound was not perfectly healed until the twentieth day.

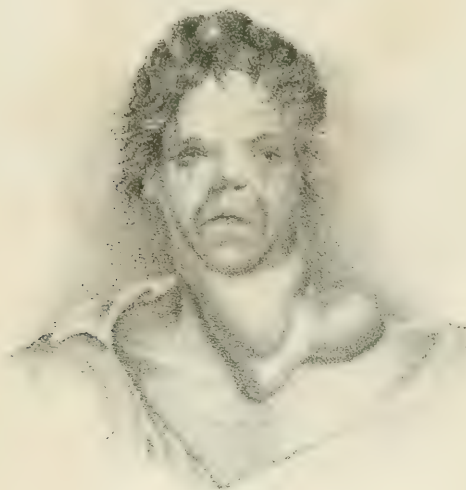
After the experience of ten years, which elapsed between the writing and printing of his memoir, M. Maunoir enjoins the necessity of avoiding errors in diet, and exposure to cold and moisture ; declares his increased confidence in the treatment by seton, and that the following is one of those cases which have given him most trouble in effecting a cure. The case is very briefly related, and may be translated thus :

CASE V.—“ M. Tallon, inhabitant of a small village near Nyon, Canton de Vaud, and aged 57, had for many years a hy-

drocele of the neck, which, small at the commencement, had gradually acquired an enormous size. His chin rested upon the tumour, and the latter was supported by the sternum. The difficulty in breathing was distressing, and caused continual rattling in the throat. I operated upon this patient on the 22nd of May, 1822. The tumour was immediately evacuated, and a thread left in the cyst, so as to traverse its greatest diameter. The relief which followed this operation was remarkable and complete. I shall not enter into the details of the treatment, which were so analogous to those which form the main object of this memoir. I shall only say, that, after passing through all the phases of a local inflammatory disease, and a very abundant suppuration, it was only on the 1st of April, 1823, that I was enabled, without danger, to remove the seton. The two openings were quickly cicatrized; and from that time, M. Tallon has enjoyed perfect health, and has not preserved the least trace of this cumbersome disease."

Such are the cases detailed by Professor Maunoir. The following are those which have come under my own observation.

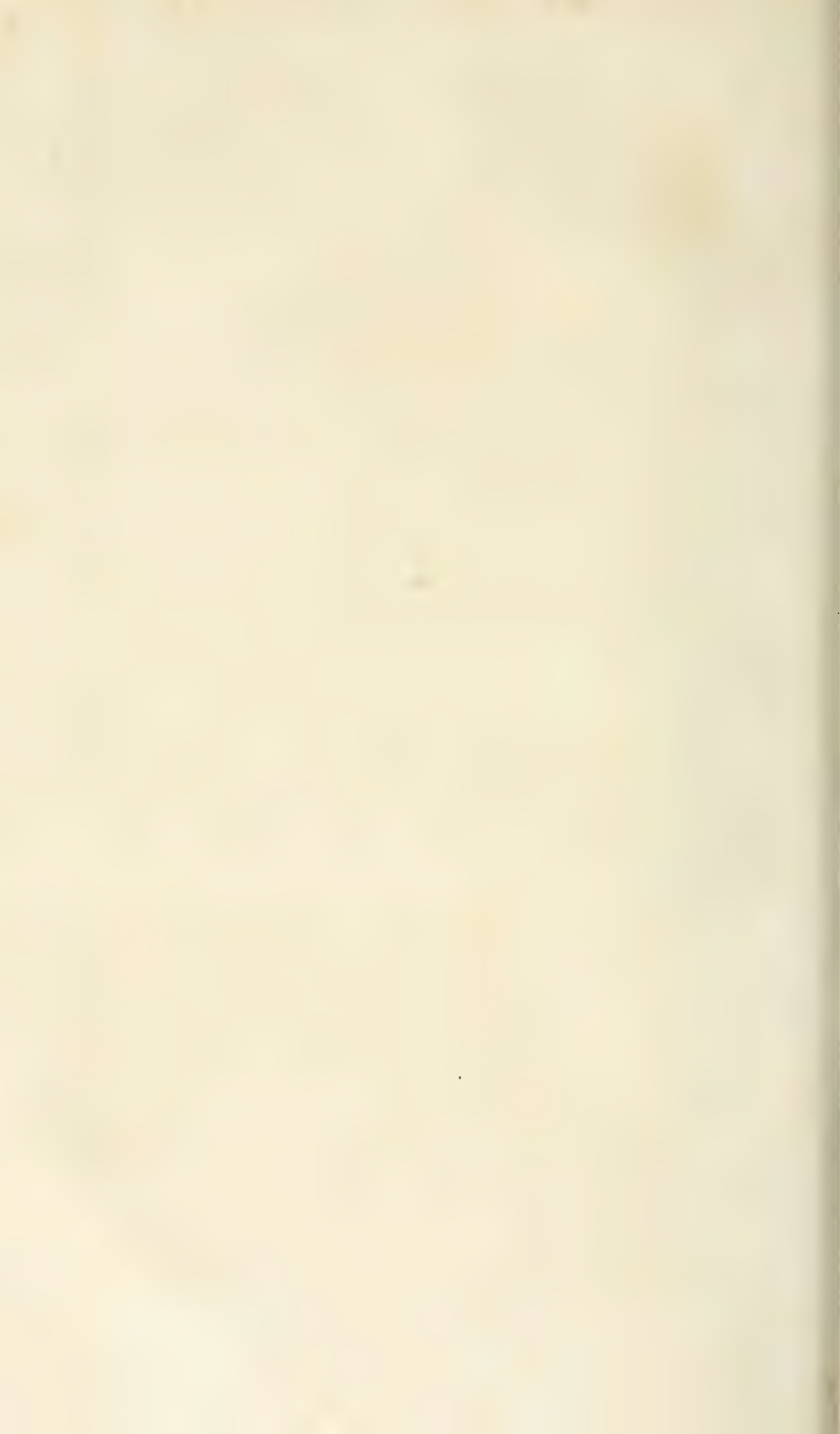
CASE I.—Stephen Cassidy, aged 60, of a very wizened, weather-beaten appearance, and residing at Meath-hill, county of Meath, admitted into the Richmond Surgical Hospital, under my care, on the 25th of June, 1831. This man has a very large tumour, which occupies the whole of the front and left side of the neck. At its upper part also, it extends into the left side of the neck, and thence passes obliquely downwards to the left sterno-clavicular articulation, at which point it terminates in a rounded projection, and then sweeps upwards and along the left clavicle to within two inches of the left acromion. The whole of the tumour, particularly that part of it which covers the thyroid gland, is remarkably prominent; gives a perfectly distinct sense of fluctuation, and is quite free from any appearance or feel of pulsation. Its integuments are of a natural colour, and so thinned as to be almost diaphanous; and numerous small veins are seen ramifying beneath the distended



STEPHEN CASSIDY.



THOMAS BROUCHALL.



skin; but on examining the swelling, in the ordinary way, by transmitted light, it is not found to be transparent at any point. He complains of no difficulty in breathing or swallowing, or of any inconvenience whatever, excepting that arising from the great size and unsightliness of the tumour. He states that the disease commenced about twelve years ago, by a very small, moveable swelling in the centre of the triangular space above the acromial third of the left clavicle; and that this lump had gradually, and, without the least pain, increased to its present size. He is very unwilling to allow the tumour to be opened, and assigns as a reason that a medical gentleman had cautioned him against ever permitting it to be opened, as the consequence would assuredly be instant death by hæmorrhage.

Having, with considerable difficulty, and after a delay of five days, succeeded in removing his fears on this account, I resolved, as this was the first case of the kind that I had seen, on merely making an exploratory puncture into the most depending part of the tumour, which was that corresponding to the left sterno-clavicular articulation. I proceeded thus: a transverse fold of the skin covering this part being raised, it was divided by the shoulder of a lancet; when immediately the sac, very thin, and covered with numerous small veins and arteries, protruded through the incision. The point of the lancet was then passed beyond its shoulders into the protruded sac, and a large quantity of reddish serum discharged. At first, the stream appeared so very red that, fearing it to be of pure blood, it was closely examined, and found to consist of two currents, one serous, and the other very slender, and evidently proceeding from a few small arteries on the outer surface of the sac, which had been divided by the lancet. It was observed also, that almost from the instant that this fluid began to pass off, the tumour began to pulsate, but much more strongly above the left clavicle, than at any other part. In a few minutes, the whole of the tumour was evacuated, and all unusual pulsation ceased. The thyroid gland could now be readily felt, and, after careful examination

was found in a perfectly natural and healthy state. Successive layers of lint, steeped in cold water, were then laid along the whole of the left side of the neck, and over these a wet calico roller was applied, so as to exert a moderate degree of pressure. A similar fluid continued to be secreted and discharged by the sac, the dressings became thoroughly soaked, of a reddish colour, and so tightened as to be distressing and require their removal. This discharge continued to flow for three days, wetting, each day, a considerable quantity of old linen, yet without appearing to produce the least debility. On the fourth day, it ceased, the opening in the sac and that in the skin having healed; and on the following day, the tumour regained its former size and general appearance.

It was now my intention to again puncture the tumour, and to pass a seton through it; but the patient obstinately persisted in refusing to submit to the second operation, on the plea of an urgent necessity to go home. He was discharged on the 10th of July, faithfully promising, however, to return in a few weeks. Since that time, I have neither seen nor heard of him.

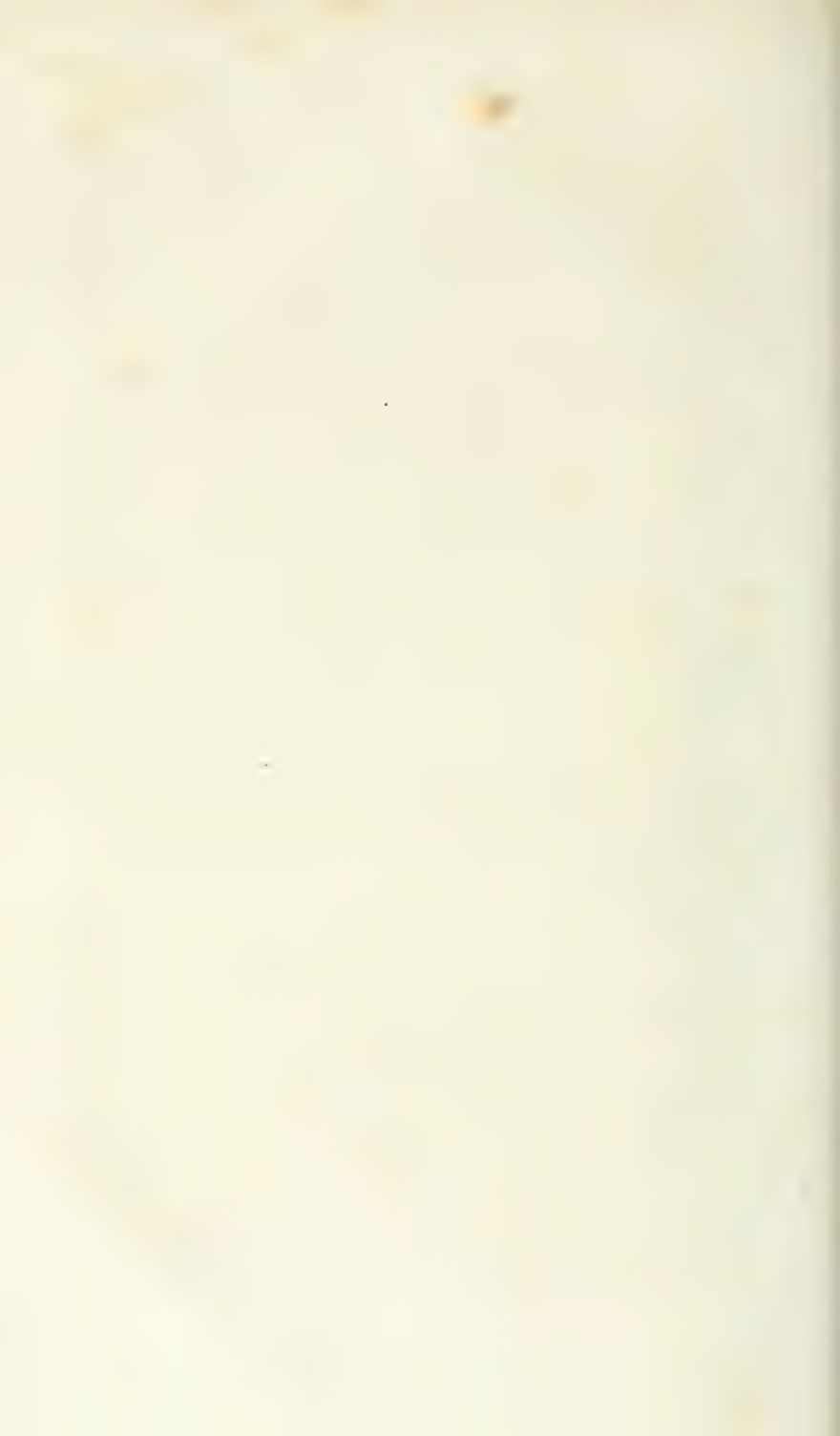
CASE II.—Mary Kelly, aged 60, healthy, and of temperate habits, admitted on the 17th of May, 1833, into the Anglesey Hospital and Dispensary, under the care of Mr. Hayden, on account of a large tumour which she has in the neck. She states that, about thirteen years ago, she perceived, for the first time, a round, hard, moveable tumour, about the size of a pea, and free from pain or discoloration, situated in the inferior posterior triangle of the neck, and immediately above the greatest convexity of the left clavicle. In the course of a month after, it enlarged to the size of an almond, and became much harder. From that time it increased gradually and imperceptibly, until about two months ago, when its growth became, and has since continued to be, very rapid. About three months ago, she had a cough so violent as to deprive her of rest for five weeks, at the end of which time she began to bleed profusely from the nose and mouth. The bleeding continued for three days, coming on



MARY KELLY, *before the operation.*



MARY KELLY, *after first operation*



regularly every fourth hour, and amounted to about three pints; but it completely removed her cough. She never had any bleeding from the nose or mouth either before or since that time. During the last fortnight she has suffered much from an indescribable kind of pain, passing occasionally across her back, and down her right arm as far as the elbow joint; the left arm not being in the least affected.

The tumour is now of considerable size; extending from the clavicle (the anterior half of which it covers) to the buccinator and other muscles of the face, and, in fact, occupying the front, and nearly the whole of the left side of the neck. Its shape is somewhat pyramidal, the base being above and the apex below. It conveys a distinct sense of fluctuation, but as if the fluid were contained in a number of distinct cysts. There is no discoloration of its integuments, but the external jugular vein is more distended than usual. No pulsation is perceptible in any part of the swelling. Respiration and deglutition are not seriously affected. She has more difficulty in swallowing fluids than liquids, and even the latter are sometimes arrested in their progress, but never permanently.

The patient having consented, the operation was immediately performed by Mr. Hayden, assisted by Dr. O'Beirne, consulting Surgeon to the institution, and in the following manner. The skin covering the highest point of the tumour being pinched into a transverse fold, this fold was divided so as to leave a longitudinal wound about an inch long. Some scattered fibres of the platysma were next divided, until the sac came fairly into view. The sac was then freely punctured with a lancet, and a quantity of dark, coffee-coloured fluid discharged. While this fluid was escaping, a blunt probe, armed with a skein of silk, was passed into the opening, and its point made prominent at the most depending part of the tumour. Incisions were then made at this point through the skin and into the sac; the probe was withdrawn, and the silk left in the usual manner of passing a seton. The tumour being now com-

pletely emptied, the thyroid gland was carefully examined, and found quite free from enlargement, hardness, or any other morbid condition perceptible to the eye or touch. On examining the sac also, at its upper part, and separating it from the parts beneath, which was easily effected, another but much smaller cyst was clearly seen and felt at a considerable depth, and situated so directly over the carotids, that it was not considered safe to puncture it. Feeling weak, she was placed in bed, and cold cloths were applied over the seat of the tumour. During the night, she was restless, feverish, and complained of pain passing from the left side of the neck to the corresponding mamma. Relieved by an anodyne draught. May 18th. Complains of the same pain; pulse 100; tongue white; skin hot and dry; bowels confined: ordered a draught of rhubarb and magnesia every four hours, until the bowels are freely opened. 19th. Bowels have been freely moved yesterday, had some sleep last night, but disturbed by a severe cough; still feverish; complains of the same pain in the neck and mamma: ordered a pectoral mixture, with tincture of hyoscyamus, and the neck to be covered with a light emollient poultice. 20th. Feverish; great increase of pain in the tumour, and extending to the back of the neck; suppuration commencing: ordered, leeches to the tumour, a rhubarb draught, and an enema, if necessary; an anodyne draught at night. 21st. Had very little rest last night; purulent matter now flowing freely from the sac; pain greatly subsided: ordered decoction of bark, with dilute sulphuric acid; and to have some jelly. 22nd. Tumour much diminished in size, and greatly improved in all other respects. She complains, however, of severe pain from three enlarged glands situated over the left cervical plexus. Leeches, fomentations, and a purgative draught ordered. 24th. Greatly improved in health and appetite; suppuration diminishing; bowels confined; purgative draught ordered; bark and acid mixture repeated. 25th. Tumour distended with pus; seton removed, and a considerable quantity of pus discharged. 10th July. Has improved progres-

sively, and in all respects, since last report. There is now a small sinus containing a small quantity of matter, and extending downwards from the inferior opening. This sinus laid open; tumour so much diminished that the neck is nearly of its natural size and form. Both the superior and inferior openings are closed. The cervical glands remain indolently enlarged, notwithstanding the application of small blisters, camphorated mercurial ointment, ointment of hydriodate of potass, and various other agents. Discharged in perfect health.

This woman was again admitted into hospital, on the 17th of September following, with a small fluctuating tumour, situated about one inch above the left clavicle, and crossed obliquely, at its centre, by the external jugular vein. (*See plate.*) Mr. Hayden, assisted by Drs. O'Beirne and Ireland, operated upon it in the same way that he had upon the former, and gave exit to a comparatively very small quantity of the same kind of fluid. Except slight constitutional disturbance, and accumulation at one or two points which required to be opened by a lancet, nothing remarkable occurred in the progress or treatment of the case; and the woman recovered, with merely a small indurated elevation marking the seat of the second tumour.

CASE III.—T. Broughall, a labourer, aged 60, received under the care of Mr. Adams, into Jervis-street Hospital, on the 26th of September, 1833, on account of a large-sized tumour occupying the left parotid region, and nearly limited in every direction by the outlines of that space. Its base is immoveable and deep seated, being fixed to the angle of the jaw, and the other deep parts in that region. Its surface projects irregularly at several points, which have a soft, elastic, fluctuating feel; and the skin covering these points is thin, and of a livid red colour; and when looked at from a distance, its general appearance is such, that it might easily be mistaken for fungus hæmatodes. He complains of stinging pains, darting occasionally through the tumour. The character of his countenance is peculiar; the affected side being devoid of all ex-

pression. He is unable to close or open the left eye perfectly ; the tears trickle down the cheeks ; the right angle of the mouth is elevated and drawn towards the same side. The general health of the man seems unimpaired. He states that, three years ago he felt, under the lobe of the left ear, a hard kernel which was moveable, and quite free from pain of any kind. It increased gradually and became fixed to the surrounding parts. At length it was occasionally invaded by pain, which has latterly become more frequent in its attacks. About three months previous to his admission, it was punctured by a country practitioner, and a quantity of thin reddish fluid given exit to. Since he came into hospital, a similar operation has been performed, and with a similar result ; the wound healed as it would in other parts. 17th October. An incision made into the tumour, and gave exit to about four ounces of a fluid exceedingly like coffee grounds, and free from odour. The upper and anterior part of the tumour was rendered quite flat and flaccid by the removal of the fluid : compresses of lint, with a bandage wet with cold water, were applied. 18th. Wound healed ; the fluid again collected ; and the tumour is of its former size and appearance. 21st. Tumour again punctured, and a similar quantity and quality of fluid, containing numerous hydatids, discharged. He complains of having had more pain in the tumour, than he has had since it was first punctured ; dressed as before. 22nd. Tumour refilled, but has not attained its former size. Towards evening he complained of headach, and burning heat all over him, particularly about the tumour. During the night the tumour burst, and discharged a good deal of fluid. 26th. This day have been observed for the first time, several small moveable adipose tumours on both his fore-arms ; these, he says, have been there longer than he can remember. 27th. Tumour burst in the night, and is reduced to half its former size by the quantity of fluid discharged ; complains of a slight headach. 29th. Tumour gave way on each of the two last nights, and discharged a good deal. It is now red and painful. He complains of headach

and thirst, and insists upon going home to-day ; pulse 90. 31st. Left the hospital of his own accord.

Now that all the facts are fairly before us, it will be found that they furnish ample materials for detecting the fallacy of Baron Percy's objections, and showing the additional force which Professor Maunoir's replies acquire from the cases which I have just detailed, as having come under my own observation:

The Baron first objects to applying to a disease of the neck the term hydrocele, which has been so invariably restricted to dropsy of very different and distant organs. In order to show, also, that, when so applied, it is defective in expressing the real nature of the disease, and that the term hydrobronchocele, which he prefers, would be less objectionable, he endeavours to prove that the professor's cases were all examples of the solid bronchocele becoming converted into an aqueous tumour, such as are well known, and have been described by Celsus, Albucasis, Helwig, Heister, J. L. Petit, Louis, Tenon, and Pelletan,* all of whom he quotes. To these objections the Genevese Professor replies, first, that the term hydrocele, by literally meaning nothing more than a tumour containing water, is a general one, and consequently that usage cannot form a valid objection to its being applied to similar tumours, whatever may be the organ in which they are situated ; secondly, that his cases show that the disease generally exists independently of any affection of the thyroid gland, and therefore that the term

* In quoting Pelletan, the Baron states that the former "has seen enormous goitres, in which the integuments, cyst, and fluid were so transparent, that the blood vessels beneath could be seen." Having the strongest doubts of the existence of such tumours in any part of the body, I have had the curiosity to consult Pelletan's works, and find that he makes no assertion of the kind. In his observations on extraordinary tumours, (*Clinique Chirurgicale*, t. i., p. 208,) he mentions, that, in the act of extirpating a lipoma or adipose tumour situated in the neck, he was enabled to see the deep seated vessels of the side of the neck. It is not improbable that the learned Baron may have been led into error on the point, from some confused recollection of this passage.

hydrobronchocele, besides being less concise, would convey false ideas of the nature of the disease. This latter part of his defence would have been much more complete, if he had not omitted either to ascertain, or, in detailing his cases, to mention, the exact point of the neck at which the tumours commenced. This important defect in the necessary evidence, however, is fully corrected by all the cases which I have detailed. In the first and second of these, it will be seen, that the tumour commenced in the posterior inferior triangle of the neck, and, of course, at a part very distant from the thyroid gland; that, in the third case, it commenced in the parotid region, which is nearly equally distant from this gland; and that in all of them, the gland is seen to have never been in the least affected.

The Baron next objects to M. Maunoir being considered as the discoverer of a new disease, such as he pretends this to be. The latter replies, that, so far from considering himself the discoverer of a new disease, his original memoir contained, first, a full admission that the disease had been often observed, but as often mistaken for bronchocele; secondly, references to such authors as appear to have seen examples of it; thirdly, a candid acknowledgment that his own claims were limited to his being the first to show the true nature of the disease, and its most effectual mode of treatment.

The third objection respects the practice of emptying the sac at once, instead of gradually. But M. Maunoir, amongst other arguments advanced in reply, urges the self-evident and conclusive fact, that it would be perfectly impossible to evacuate a tumour gradually, when the means necessary for its removal consist in passing a seton through its longest diameter.

The fourth and last of the Baron's series of objections consists in stating, that, as Albucasis and the most ancient authors have remarked, all tumours compounded of dropsy and goitre present some of the appearances of aneurism, particularly pulsation synchronous with the action of the heart, and communicated by the subjacent arteries, it is surprising that M. Maunoir

should have omitted to describe pulsation as one of the characters of the tumours in question. In making this charge, also, he plainly hints that this omission necessarily involves another of great importance, namely, that of a diagnosis between these and aneurismal tumours. In reply to these charges, the Professor goes at once to the point, and answers simply thus: "Too striking not to be remarked," he says, "I should not have have passed it (pulsation) over in silence, if it had presented itself to my observation. It must be that this symptom is not so constant as we might be led to suppose from reading the report; to the present time it is only known to me as an exception, of which I am forced to seek for examples in the experience of others."—(p. 125.) He might, however, have considerably strengthened his position, by quoting Heister's case, one of those to which he himself had originally referred, and by extracting from it these words: "et cum nullum arteriæ pulsum in ipso sentiret, malum quoque aneurysma non esse judicabat."—(Halleri Disputation. Chirurgic. tom. v., p. 434.) No sentence can possibly be more in point, or more conclusive against the Baron, than this is. But, like every advocate of truth, he has not appealed in vain to the future "experience of others," for no mention whatever is made of such a symptom as pulsation having been observed in the cases related by Delpech or Lawrence; while, in all of those which I have detailed, this symptom is pointedly noted as having been absent. In the case of Cassidy, the first which I have related, there was indeed pulsation, but the reader cannot have failed to observe, that it did not occur before, but after the sac had been punctured, and some of its contents evacuated. But this occurrence is easily explained. In every stage of the tumour, the sac is so filled, that little or no motion is permitted between the particles composing its fluid contents, and consequently, according to a received axiom in physics, these particles are incapable of transmitting, in any sensible degree, the impulse communicated to them by the beat-

ing of subjacent arteries, until a certain portion of the fluid contents shall have been evacuated.

We see, then, that all the learned Baron's objections are utterly inconsistent with every fact as yet known on the subject, and that, whether the name given to it be retained or not, it is scarcely possible to doubt the existence of a disease, which it is practically important to be well acquainted with, and to carefully distinguish from cases in which bronchocele has become converted from a solid to a fluid state. We may observe, also, that, in the former, the previous history and peculiar characters of the tumour are quite sufficient to mark the difference between it and all tumours of the latter description.

It is not unlikely that some may be disposed to prefer the treatment by incision, and find arguments against that by seton in the cases here detailed. It may be urged that M. Maunoir's cases show, that the latter mode exposes the patient to infiltration and its alarming consequences; while such an occurrence cannot possibly attend the former plan. But the cause of infiltration taking place in one of his cases is evident. By puncturing the tumour with the common hydrocele trochar, the small size and triangular figure of the wound, aided by the contractility of the skin, enabled the external opening to become closed, before that made in the sac, and thus effusion of the contents of the tumour into the subcutaneous cellular membrane could scarcely fail to take place. It is from the same causes, also, that we are enabled to explain why, when he passed a single thread of silk through the tumour, both openings contracted so firmly as to prevent all discharge, and make it difficult to move the thread backwards and forwards. It is plain, therefore, that he erred in not making a free incision in the skin and sac, particularly in the former, and we see from some of his expressions, as well as from his having at length employed a bistoury in puncturing these tumours, that he became fully aware of his error in this respect. In proof of this being the correct view of the matter, I have only to adduce the fact, that infiltration did not

take place in any one of the three cases which I have detailed, and which were treated by free incisions in the integuments and sac. It is clear, therefore, that this cannot be received as a valid objection against the treatment by seton.

Again, it may be urged that the cases which Heister, Delpech, and Lawrence relate, and in which incision was successfully employed, occupied a considerably shorter time in their treatment, than those which are related here as having been treated by seton. But it should be considered, first, that in M. Maunoir's cases, the period of recovery was necessarily protracted in consequence of the objectionable mode which he employed in passing the seton; secondly, that the improved method of passing the seton has been tried but in one case, that in which I assisted Mr. Hayden, and which was necessarily unfavourable, from the circumstance of their being several distinct cysts to be removed. Admitting, however, the force of this objection to the fullest extent, and that future experience should make no alteration in the present state of the fact, I would still prefer the treatment by seton, simply on account of its not leaving a long cicatrix in the neck; an advantage of great importance, particularly to females.

Circumstances have convinced me that the operation which I have described, may be considerably improved. In assisting Mr. Hayden, I observed that when the point of the probe was made prominent at the most depending part of the tumour, and he attempted to cut upon the end of the instrument; the integuments glided from side to side, and so effectually evaded the shoulder of the lancet, that it was necessary to make several attempts before the incision could be completed. This was evidently owing to the fluid contents escaping at the upper opening, and rendering the tumour so flaccid as to enable the integuments to glide freely over the sac. In order to obviate this defect, which causes unnecessary pain to the patient, and an awkward kind of embarrassment to the surgeon, it will only be necessary to expose the sac, previous to

puncturing it, at the upper and lower extremities of the tumour, by raising and afterwards dividing a transverse fold of the integuments at each of these points. By proceeding in this way, the sac alone opposes the passage of the probe through the lower opening, and no difficulty will be found in cutting into it, so as to allow the instrument to pass, and the seton to be introduced.

After the seton has been passed, I am now disposed to alter my opinion respecting the applications of either a roller or water dressings. I believe that applying a simple dressing, or a light, warm, emollient poultice, would be better practice.

To conclude.—It is somewhat remarkable that, out of ten cases which have been related by Heister, Maunoir, Lawrence, and myself, and in which the side affected is mentioned, nine have occurred on the left side of the neck. The late M. Delpech, whose untimely and awful fate we must all deplore, does not, if Mr. Lawrence's extracts may be trusted, mention the particular side on which either of his two cases occurred. I have seen the first, but have not been able to procure the second, volume of this very distinguished French surgeon's work.

ART. II.—*Observations upon the Operation of Excision of the Cervix Uteri, with an Account of a Case of Abscess within the Cavity of that Organ, and a Detail of Two Cases of Uterine Eccrescence.* By JOHN BROWNE, M. D., one of the Surgeons to Saint Mark's Hospital, and formerly Surgeon to the County of Meath Infirmary.

(Read at the Dublin Chirurgical Society.)

AMONG the numerous effects which we almost daily witness of the "*march of intellect*" and of the "*progress of knowledge*," there is not one more truly gratifying to the medical philosopher than the advancement which the obstetrical department

has made, within a few years, not only in foreign countries, but in our own.

Midwifery is no longer a species of charlatanism confided to ignorant old hags, and presumptuous (because half educated) medical pretenders; it is no longer sneered at as a disgraceful and unbecoming occupation, by the grave heads of certain learned bodies; but, it has resumed the position which nature and humanity always assigned to it, namely, an equality with the other branches of medical science.

Need I do more, in confirmation of my assertion, than recall to mind the numerous lying-in institutions which now exist in this city; the respectability of the papers connected with that branch of the healing art which have been read here and elsewhere; and the general zeal manifested in such pursuits, by numerous scientific friends, some of whom I have, at this moment, the pleasure to see around me.

But it is not to midwifery alone that the above observations may be applied; the study of the functional and structural derangements of the female sexual organs in general, has been of late more carefully pursued than before, and several of those affections, the treatment of which modern usage has divided between the surgeon and the accoucheur, (at least in large cities,) have been more carefully, and, therefore, more successfully investigated, than at any former period.

To contribute to the general stock the result of such experience as each individual may have had in his own practice, is generally felt as a duty required of every medical practitioner, and, in accordance with such an opinion, I now proceed to lay before the society a detail of a few cases of uterine disease, which, I trust, may be found in some degree, valuable. Previous to which I shall give a short narrative of the novel (at least in this country) operation of removing the neck of the womb, as witnessed by me at Paris, in 1826 and 1827, which, I hope, may serve to make more generally known a valuable mode of treating several of those maladies, the management of which,

by other methods, has hitherto proved, on several occasions, extremely uncertain and unsatisfactory.*

To perform this operation the patient must be placed, as for lithotomy, with the parts exposed to a clear light. The speculum is then to be introduced by a slight rotatory motion of the hand, its outside having been previously smeared with cerate or butter, (in preference to oil,) and care being taken to avoid soiling the interior of the tube, which, when clean, serves to reflect in its sides the disease of the cervix, and will, of course, aid the practitioner in forming his opinion: a lighted candle, held close to the larger end of the instrument, is sometimes employed with a similar view.† The condition of the cervix hav-

* Since this paper was written, M. Lisfranc's valuable lectures on Diseases of the Uterus have been published in the *Lancet*.

† The speculum uteri is an old instrument improved. The original instrument consisted of two or three branches which shut and opened, but its blades were too narrow to separate the walls of the vagina sufficiently. M. Recamier revived the modern speculum, by making it a solid cone, and M. Dupuytren added the handle to it. The specula, now used in France, are, either that of M. Recamier, of which various sizes are kept; or that of Madame Boivin, which consists of two parallel blades, allowing of partial separation, one of which is sometimes perforated to allow certain parts of the vagina to be inspected. Other varieties of specula have been proposed, as that of MM. Dubois and Lallemand, in which a portion of the tube has been removed along its entire length; the glass instrument of M. Guibert; the concave mirror of M. Colombat; and the complicated apparatus of M. Segallas, consisting of a conical mirror open at both ends, and having at the larger extremity two wax tapers: a well polished silver spoon, Madame Boivin sarcastically observes, (*Traité des Maladies de l' Uterus, et de ses Annexés*, t. i., p. 69.) might answer equally well as this operose contrivance. For the ordinary purposes of mere examination the speculum of M. Recamier is generally used; it is simpler, generally more convenient, and less liable to catch in and pinch the lining membrane of the vagina, than that of Madame Boivin. One advantage, however, attends the use of the last-mentioned instrument, which is, that the double hooks can be introduced through its tube, and subsequently may have it withdrawn from beneath them; a plan not admissible by the construction of the other. The chief use of these specula being to ascertain the nature of a presumed disease, it seems immaterial whether they be employed to carry or

ing been ascertained, and the speculum withdrawn, the left forefinger is passed up, and on it the double hooks, (which I here exhibit,) which are firmly fixed into the projecting lips of the cervix, one on each side, and given to an assistant for a moment. The operator then, taking both hooks in his right hand, gradually and gently draws down the cervix, till it has been brought nearly on a level with the external parts, he next passes a button-pointed bistoury behind the diseased portion of the uterus (the labiæ, &c., being held asunder,) and removes it. A similar operation is performed in cases of polypi, with this exception, that, in place of the bistoury, a large and strong pair of curved scissors is used, and that the neck of the polypus is, in general, alone divided. The cut surface of the uterus quickly resumes its natural position on the removal of the hooks, no dressing being commonly applied to the part, and the patient, being put to bed, is placed on a strict regimen for several days, venesection and leeching being freely employed not only to remove, but even to prevent attacks of inflammation.* Care is to be taken to throw emollient lotions, or those containing the chlorides of lime or soda, into the vagina several times daily, by means of a syringe, and the wound, if tedious, may require to be touched

direct the hooks or not, the forefinger being quite sufficient for that purpose. Such appears to be the opinion of French practitioners in general, as some employ the speculum, but many others trust to the finger alone.

* M. Lisfranc usually bleeds his patients (at la Pitié) to $\bar{3}x$. or $\bar{3}xii$. soon after the operation. (the effect of the excision being considered by him, particularly where there has been preceding memorrhagia, to be analagous to a suppression of the menses,) repeating the bleeding, leeching the sacral region, and using emollient fomentations and enemas, on the least occurrence of abdominal tenderness. Such treatment is generally very successful, although it is not uncommon to bleed three or four times from the arm, besides applying leeches. A similar plan is likewise followed by that distinguished surgeon, after the simple introduction of the speculum, in certain cases where an inflammatory diathesis exists, more particularly in young persons, or where the cervix, in addition to other disease, appears engorged.

with the nitrate of silver.* Women so treated are usually able to go home in three or four weeks.†

When we consider the high vascularity and great irritability of the uterine apparatus, it might be supposed that the operation just described must necessarily be of an extremely painful nature, and that troublesome hæmorrhage should always occur. But I can assure the society that no such consequences usually ensue; the drawing down of the organ being commonly effected by very slight efforts, and, as to pain, the patients hardly ever appear to experience any. The bleeding too, seldom exceeds one or two ounces.

There is one consequence, however, which usually follows, and which, I need scarcely observe, requires to be energetically treated, I mean inflammation of the peritonæum.

Whether this arises from the division of the portion of that membrane descending between the rectum and uterus,‡ from continuous sympathy, (as Hunter calls it,) or from an extension of the disease from the parenchymatous substance to the mem-

* The patient is not to be allowed to go to stool soon after the operation, as the efforts to do so may detach the coagulum from the wound.

† One became pregnant fifteen days after the operation, went the usual time, and was delivered in three quarters of an hour, as there was no cervix uteri to oppose resistance to the passage of the infant.

‡ “The serous membrane of the uterus is formed by the peritoneum, which, from the anterior surface of the rectum and the posterior surface of the bladder, is reflected over the uterus, to which it forms an envelope, *adhering pretty firmly along the upper edge, but separated from the tissue of the organ upon the two surfaces by a great quantity of vessels and by a layer of dense cellular tissue destitute of fat.*” (Cloquet's Anatomy, by Knox, 4th edition, page 815.) “La membrane extérieure est fournie par le péritoine qui se réfléchit de la face postérieure de la vessie sur la matrice, dont il tapisse la face antérieure le fond et la face postérieure, qu'il abandonne ensuite pour se porter sur l'intestin rectum. Cette membrane adhère par-tout au tissu propre de la matrice, au moyen d'un tissu cellulaire très fin et très serré, sans graisse, et on ne l'en sépare que très difficilement, surtout vers le fond de l'organe.” (Boyer, *Traité Complet d'Anatomie*, t. iv. p. 563, édit. 4.)

branous covering of the uterus, is not easy to determine. The portion of the cervix removed is usually the part which naturally projects into the vagina,* and no more, and it will, I imagine, be conceded, that when we consider the general extensibility of the organ, such a portion of it may be safely excised without implicating the important membrane in question; but I do not say that on occasions where a portion of the *body* has been removed with the *cervix*, that such an injury may not have been done: an accident which, I need scarcely observe, the practitioner should do his utmost to avoid.

I shall now state shortly the cases in which I have witnessed the operation above described. The first was a woman affected with polypus. She was 45 years of age, pale and emaciated from repeated hæmorrhages, and under the care of Baron Dupuytren, at l'Hotel Dieu. Having been placed "in situ," the operator introduced his left forefinger into the vagina, upon which he passed a long blunt forceps, (similar to our English bullet forceps,) and seizing the cervix uteri, brought it down with the polypus attached to it, (without difficulty, violence or pain,) nearly on a level with the external parts. He then took a large and strong scissors, slightly curved, (about three times the size

* Anatomists are not agreed as to the precise length of this part, Boyer stating it to be but four or five lines; Cloquet from twelve to fourteen lines; and Quain, from six to eight lines. (See their works above quoted, pages 816 and 565, and Quain's Elements of Anatomy, page 536, first edition.) In the healthy state it will probably be found to vary from half an inch to three-fourths of an inch in length, but we are to recollect that morbid elongations are not uncommon, and that such prolongations may accompany diseases requiring the operation in question. Bichat met with two or three instances of such morbid growths, which he cautions us not to confound with prolapsus uteri. (*Anatomie Descriptive*, par Roux, t. v. p. 282,) and Madame Boivin, in her late excellent work on Diseases of the Uterus and its Appendages, relates several cases of a similar kind, in some of which the extended cervix even passed out of the vulva, being, on one occasion taken for a polypus and tied, a blunder which proved fatal to the patient, from the supervention of peritonitis. (Boivin et Dugès *Traité Des Maladies de l' Uterus et de Sex Annexés*, t. i. p. 255.)

of the common pocket scissors,) and divided the neck of the polypus. The forceps being removed, the uterus immediately resumed its normal position, a few drops of blood only were discharged,* and the woman did well. The tumour was as large as a small orange, and of a firm consistence.

The next case was that of a woman 33 years of age, who had had one child, and been always regular. She did not appear to suffer much, nor was her general health impaired. The disease had existed for six months, and was said to be cancer. Madame Boivin's speculum having been introduced, the hooks were passed in, and the speculum afterwards withdrawn over them. *About one inch and a half of the uterus, including the os tinæ and cervix, was then removed*, in the usual way, by the bistoury. The cut surface of the part taken away was soft and natural in aspect, and the disease was simply a superficial ulcer, somewhat larger than a sixpence, and similar to the sores often observed upon prolapsus uteri, which has remained long unreduced, and certainly was any thing but cancer. There was a very trifling hæmorrhage, and the operation was so devoid of pain that the woman stated, after having been put to bed, that she did not even feel the incision. This patient ultimately recovered, although bled thrice and leeches once. The third case was that of a young girl, 22 years of age, who appeared not to have had children, as the vagina would not admit the large speculum. *One hooked forceps only was used*, and the cervix having been drawn down, the speculum was removed, *and the part excised to the extent of about one inch*. It was neither swelled nor hard, but five or six small and superficial ulcers existed on the surface. Little pain was experienced at the time of the operation, during which about $\frac{3}{4}$ vi. of blood flowed; and the hæmorrhage continued for six or eight hours afterwards.

* To this fact the Baron particularly called our attention, contrasting it with the large and repeated bleedings which had previously taken place from the tumour, and by which the woman had been nearly blanched and much debilitated.

3xviii. or 3xx. escaping, and delirium taking place in the evening. Nevertheless, she slept well, although she had not been enabled to do so for several nights previous to the operation, from pain in the pelvis. The day following she complained of slight uneasiness in the uterine region, accompanied by a full pulse. Bleeding to 3vi. and a cataplasm to the abdomen were prescribed as precautionary measures, and I believe the case ultimately did well. In a fourth case, that of a deformed female, 32 years of age, who had borne two children, the cervix was brought down, in the usual way, beyond the external parts, but not being found sufficiently diseased to require removal, was allowed to resume its natural position.

I have thus stated the result of these operations on the neck of the uterus, as practised by the French surgeons.* But while I admit the facility with which such a measure may be accomplished, I must be permitted to doubt its necessity in some of the cases related. The second and third were, in my opinion, such affections as would have yielded to common local and constitutional measures, and would, I have no doubt, have been so treated by British surgeons, and perhaps by a few of our French brethren.† The first case, however, was one to which the treatment was peculiarly appropriate, as was shown by the facility of its execution, and the success by which it was followed.

I cannot avoid contrasting, on this occasion, the extreme facility of such an operation, with the difficulty, trouble, irk-

* "Several years ago, Dr. Osiander, of Gottingen, published an account of his mode of extirpating the cancerous neck of the womb, by transfixing it with ligatures, and thereby pulling it so low and keeping it so steady, as to enable him with a bistoury to cut off the diseased part. At the time of publication he says he had performed the operation nine times with success. This operation has not yet (1824) been performed in this country.—(Burns' Midwifery, page 93, sixth edition.) From this quotation it would appear that the French were not the original inventors or revivers of the operation.

† See M. Ricord's Observations upon Ulcers of the Cervix Uteri, in "Le Journal Hebdomadaire."

someness, occasional inefficiency, and, in a few instances, fatality of the method of treating polypi and other uterine tumours by the canula of Levret, the straight tubes of Dr. Gooch, the apparatus of M. Herbiniaux, and similar contrivances,* in illustration of which I proceed to relate a case which occurred in my own practice some years back, and which, I feel convinced, would have had a very different termination from that which took place, had I, at the time, been acquainted with the method of drawing down the cervix, and amputating tumours attached to it by the curved bistoury or scissors.

The case is this: I was called in consultation, in the summer of 1825, to visit a farmer's wife, 36 years of age, labouring under menorrhagia, attributed to a vaginal tumour. I found her much exhausted, with a pale countenance, and other symptoms denoting previous loss of blood.

On examination, a cauliflower excrescence was found to be attached to the cervix around the os uteri, about the bulk of a common sized mushroom, which it resembled much in figure, the neck being about one-third smaller than the basis; its length anteriorly was nearly two inches, but its posterior termination could not be exactly ascertained; its surface was soft and irregular, bleeding profusely on the slightest touch, and there had been, for the preceding month, a sufficient degree of uneasiness in the part to occasionally interrupt sleep.

In the course of the examination four ounces of blood were passed, and some small portions of the excrescence, of a whitish colour and soft consistence, came away. She gave the following account of herself. She had had three children and two abortions. Nine months before, (fifteen months after the birth of her last child, which she suckled, having menstruated regularly all the time, a circumstance which had not occurred on similar occasions before,) she had been attacked with menorrhagia,

* Abernethy's Lectures. Works of Gooch, Denman, Burns, Ramsbotham, &c. Herbiniaux and Levret, "Traites sur les Polypes de sa Matrice." _

which had since continued to be present, sometimes in alarming quantity, more particularly within the preceding four months. Cold lotions, anodynes, enemas, and aperients were prescribed, and on the third day, Levret's canula and wire were passed round the neck of the tumour in the usual manner.

Twenty-four hours after the operation.—Fetid discharge, external soreness, and swelling. No hæmorrhage since the day before. *The wire came away including in its noose a portion of the excrescence as large as the end of the thumb.* The instrument was reapplied with some difficulty, owing to the base of the tumour having so much diminished as to be nearly as small as the neck; the object, however, was at length effected by pressing the neck between the left forefinger and thumb, while the wire was tightened round the handle of the instrument: it was found also to be more convenient to pass in the wire without a noose, and subsequently to draw out the loop in the vagina, than the contrary plan, which is that usually recommended.

Second day: bilious vomiting and considerable inward soreness; less fetor; pulse 112, firmer; countenance improved. The wire was firm, and was tightened by drawing out its loose end one-fourth of an inch, *which was effected with some difficulty, owing to its breaking near the edge of the orifice of the canula.*

On the fourth and sixth days, the wire was tightened in the manner above described, uterine pain, retching or vomiting always succeeding.

On the seventh day, *the wire was found to have been untwisted from the canula*, and the irritability of the stomach had ceased. The wire was tightened as before.

From this period till the twenty-third day, the ligature was tightened on the alternate days, the operation being always followed by abdominal uneasiness, but the irritability of stomach was not again troublesome; on that day the canula came away,

being found loose in the bed. The wire had been drawn to the utmost and had not broken. *The tumour was found to be as large nearly, as before the operation,* and pretty much of the same figure, except that an aperture existed on its right side, sufficient to admit the point of the finger, which appeared to be the os tinæ. A slight discharge of blood followed the examination.

About a fortnight afterwards she appeared much improved in health and spirits, (the operation having had the effect of arresting the hæmorrhage,) and was able to resume her household duties, declining, under those circumstances, to submit to any farther operation. The amendment, however, was but as a calm preceding the approach of a tempest, for the hæmorrhage soon recurred, and she died of the disease a few months after.

It appears, from the foregoing case, that, after a treatment of three weeks, in which the patient suffered much from soreness of the genitals, from uterine irritation and sympathetic vomiting, almost nothing was effected. We observe the uncertainty of the silver wire; it broke on one or two occasions, and in the end, was loosened prematurely, probably by some officious ignorant person. The excrescence appears to have been one of those alluded to by Sir C. M. Clarke,* which he states to be "so extremely delicate in texture, as to be incapable of preservation, if not immersed in spirits immediately after removal."

I have next to call the attention of the society to a case somewhat remarkable, and in which, it may be observed, that the efforts of nature were sufficient to draw down the uterus, almost in the manner just recommended, and, were it necessary, might furnish a good hint for such an operation.

The subject of it was a maiden lady, about 40 years of age, to whom I was called in consultation. She had many of the symptoms of carcinoma uteri, such as pains in the loins, bearing down, tenesmus, and fetid ichorous discharge from the vagina.

* Diseases of Females, vol. ii. p. 66.

On "touching," the place of the cervix uteri was found to be occupied by an irregular mass, somewhat indurated, and slightly painful. My colleague and I, like wise physicians, shook our heads, and pronounced the case a bad one, not, however, exactly calling it cancer, though, in our own minds, we had decided it to be of that nature.

But, three or four weeks after, the gentleman alluded to was rapped up to attend, as he was told, *a labour case*, and, on his arrival, found a lady apparently *very near delivery*. There were the usual bearing down pains recurring at intervals, and the ordinary uterine action. On examination he could not exactly determine what the *presentation* was, but imagined it to be the *breech*. He seated himself by the bed side, and supported the perinæum in the usual manner, the *labour* gradually advanced, and *delivery* at length took place, but of what, will it be imagined? of *an enormous polypus*, which grew from the fundus of the uterus, which it had inverted!! and the lady, about this period, happening to uncover her head, to ask a question, was recognized as our quondam client!!!

What was to be done? this enormous mass could neither be returned into the uterine cavity, nor left where it was; the attendant, at length, decided upon amputating it close to its attachment to the fundus; which he accordingly did, having previously applied a ligature, pretty tightly, above the line of his incision.

The ligature came away in a few days, and the patient recovered so completely, that, when travelling in a coach, some months after, I had some conversation with a very robust healthy looking female, whom I did not, until she mentioned the circumstance herself, recognize to be the subject of this case, so completely had her appearance been changed for the better.

Cases of an analogous nature are recorded by Gooch,*

* Diseases of Women, page 206, &c.

Clarke,* Madame Boivin,† and others. Dr. Gooch, however, is in error when he states that “such tumours never excite expelling pains until they have been separated from the uterus,”‡ an assertion altogether disproved by the case just related.

Another instance of uterine polypus, in which the knife was employed, has also lately fallen under my notice. Here the practitioner made several ineffectual attempts to apply a wire ligature, and, at length, thrusting a hook through the tumour, drew it down, and amputated its neck with a bistoury. The woman was of middle age, and had laboured under an obstinate leucorrhea. She recovered completely.

It may be imagined, that, with the recollection of the cases above detailed, I had made up my mind to attempt the excision of the cervix the first opportunity; and an occasion at length offered in the person of Jane Sheridan, a married servant woman, who was admitted into Saint Mark's Hospital on the 28th June, 1833.

This individual was fifty-four years of age, tall in stature, and of a fair complexion. She had borne seven children, six of whom she had suckled, and her general health had been good, excepting that the catamenia were usually in larger quantity, and recurred more frequently than is usual.

Three years before menstruation had ceased, soon after which she was attacked with headach, (successfully treated by arteriotomy,) and she remained well until about three months before, when uneasiness in the loins was felt, followed, the next day, by the discharge of a large bloody coagulum: to this menorrhagia succeeded, which had since continued almost uninterruptedly, being, however, more profuse in the day, or in mak-

* Diseases of Females, vol. ii., page 63—110.

† “Boivin et Duges Traité des Maladies de l'Uterus et de ses Annexes.” — Page 350.

‡ Op. citat., page 204.

ing exertion, than at night. Two months before she first experienced pain in the left iliac region, shooting to the anus, and accompanied by tenesmus; this pain is described to have been nearly constant, and to have interrupted rest.

On admission, the above symptoms continued, the vaginal discharge amounting to §iii. or §iv. daily, and relieving (by account) the pain. Some weeks before was more exhausted than at that time, and her general health altogether had not suffered as much as might have been expected. Her pulse was 80 and moderate, her tongue clean, bowels confined, and appetite indifferent. There was nothing abnormal to the touch, either in the iliac region, or within the rectum, excepting a slight tenderness at a particular point of the lining membrane of the latter, towards the vagina. No soreness on pressing the os uteri.

On introducing the speculum, the os uteri was found tumid, engorged, and patulous; and firm, but not hard, to the touch. From its front and left side, extending about one-third all round, projected a soft whitish excrescence, elevated not more than two lines above the surface; portions of which were easily detached. The forefinger could readily be passed, for half an inch, within the os uteri, almost without pain; and in that situation a slight degree of irregularity was perceptible.

The examination having been followed by abdominal uneasiness, referred to the left side, for which leeches and other remedial measures became necessary, an operation could not be attempted for a week after admission.

At that time (July 4th) an attempt was made to draw down the cervix; for this purpose Boivin's speculum having been introduced, its blades were divaricated and held by an assistant. The hooked forceps were then passed through the tube, and fixed one on each side of the cervix. Gentle traction was next exercised (the speculum having been withdrawn) upon the two forceps, which seemed to produce more uneasiness than

is usual, till a considerable portion of the excrescence appeared within the blades.

It was now found that the excrescence had been torn off from the cervix, and remained attached only by a portion of lining membrane; this was divided by a blunt bistoury passed cautiously on the finger, and the tumour removed. Attempts were next made to fix the hooks into the lower part of the uterus, in order to remove the diseased surface from which the new growth had originated; but, the instruments uniformly separated, from the parts being unusually soft. One of the forceps was at length passed into the os uteri, with a view to fix it there, *when a discharge of thick pus, to the amount of about one ounce, flowed*; and, on passing up the finger, the interior of the uterus appeared so unequal, (though not of a stony hardness,) that further attempts to excise the cervix were considered unadvisable, the vagina was, therefore, washed out with cold water, and cold compresses applied. About two ounces of blood were lost. The uterus did not appear to be much enlarged.

The effect of the operation was an almost immediate cessation of the menorrhagia, nor did any fever or pain follow. A fortnight afterwards, on passing in the speculum, the surface was found to be less engorged, but it was still irregular, with a new growth of the excrescence. Six months afterwards her strength and appearance were much improved, and there had been no uterine discharge whatever, for the preceding two months. Her account was, that after her return to the country, a daily discharge of pus and blood, to the amount of about three ounces, had occurred, continuing for two months, and gradually diminishing; being usually accompanied by uneasiness in the left iliac region. Once or twice, on making an unusual exertion in lifting a weight, a pure menorrhagic discharge had occurred, but on no other occasion.

I saw this woman last month, when her health continued good, and her appearance was even robust.

There are several points worthy of notice in the foregoing case.—1st. It is proved that it may not be always practicable to excise the cervix uteri, or even to draw it down for that purpose. 2nd. That abscess of the uterine cavity may exist as a latent malady without any decisive symptom to denote its presence. 3rd. That very great relief, almost amounting to a cure, may be afforded by the evacuation of such purulent depositions.

The original disease appears to have been chronic inflammation of the cervix,* ending in the formation of pus within the cavity of the organ, and accidentally complicated by the existence of a small excrescence. The absence of hardness and of lancinating pain denotes that it was not cancer.

Authors on midwifery are, for the most part, silent in regard to the occurrence of abscess of the uterus in the unimpregnated state.† Sir C. M. Clarke, however, has given an excellent description of that affection; and has related three very interesting cases, two of which ended favourably, and one fatally. Among other remarks he says, “if there is reason to believe

* Mr. Burns' description of that malady seems to correspond, in a great measure, with Sheridan's case. He says, “in this affection the *os uteri* is open, soft and tender to the touch, particularly in one spot. The cervix is not materially affected in hardness, but is somewhat enlarged, and may even feel rough as if the surface were abraded. There is a considerable discharge of white mucus, which sometimes becomes puriform, and this is often mixed with blood; or, there may be very considerable uterine hemorrhage. The patient feels pain in the uterine region, but often complains more of pain in some distant part of the abdomen. There is little fever, but the patient becomes weak from discharge and irritation. Examination discovers the uterus to be swelled, and it is painful when pressed with the finger.” (Principles of Midwifery, page 93, 6th edition.)

† “Baudeloque,” *l'Art des Accouchemens*. “Gardien,” *Traité Complet d'Accouchemens, et des Maladies des Filles, des Femmes, et des Enfants*. “Chambon,” *Maladies des Femmes*. “Dewees,” *Essays on various subjects connected with Midwifery*. “Ramsbotham,” *Practical Observations in Midwifery, with a selection of cases*. “Burns,” *Principles of Midwifery*. “Denman,” *An Introduction to the Practice of Midwifery, &c. &c.*

that the uterus is distended by pus, it may be advisable gently to introduce the extremity of a bougie, or of a male catheter, into the os uteri, and to pass it onwards, until it has reached the cavity of the uterus. By such a mode of proceeding no harm can be done, and an opportunity may be given to the patient to be quickly freed of her disease.”*

These observations of his are of some importance, as they confirm the propriety of a measure which was adopted, although accidentally, in the case just related.

ART. III.—*Case of Fungus Hæmatodes*. By JOHN THWAITES, M. D., Physician to the South Eastern Dispensary.

(Read at the Dublin Surgical Society, November, 1833.)

THE subject of the following observations had been a case of so much interest, not only to myself, but many medical friends, who visited her with me occasionally, that although, strictly speaking, it does not come within the province of the physician, yet, before a surgical society, I trust I shall be excused for detailing it. *Fungus hæmatodes* also has been a subject upon which so little information has been conveyed by authors, that any communication which might possibly serve to add to our limited stock of knowledge, may be considered useful. I will enter at once then into the history of the case, and will not occupy your time by drawing further conclusions from it, than what may appear to me naturally to suggest themselves. On the 2nd of March, 1832, I was sent for to see Margaret King, as a dispensary patient, residing at No. 2, Lombard-street. Upon inquiry she gave me the following account of her case,—She was twenty-six years of age, married, and had one child, one year and half old. About two months previous to her marriage,

* Observations upon the Diseases of Females, vol. ii. page 151.

she received a severe kick on the lower part of the abdomen, about an inch above the symphysis pubis, while endeavouring to restrain a man from beating his wife. The violence of the blow produced an immediate evacuation of the contents of the bladder on the spot. For some time subsequently she could not discharge her urine without considerable distress, so that she avoided it as much as possible, retaining it frequently for many hours together. Notwithstanding this, however, she married, and in about two months afterwards was completely relieved from any uneasiness, and continued to enjoy perfect health, until about eight weeks after the birth of her child. She was then led to observe a small tumour on the spot where she received the injury just mentioned. She described it as being about the size, and possessing the hardness of a small grain of shot, but it did not produce either pain or uneasiness. Motives of delicacy induced her to conceal it, until, gradually increasing it at last attained the size of a hen's egg, before it produced the least distress. One day, while digging potatoes in a field, (an occupation to which she had been long accustomed,) and without having made any unusual exertion, she was *suddenly* seized with such an acute pain in the tumour, that she found great difficulty in returning home. This lasted for upwards of an hour.

She was now induced to seek for medical assistance, and proceeded to Newbridge, County Wicklow, to a medical resident in that place. He directed her to poultice the tumour with sea weed; but after some weeks' continuance of this treatment, not experiencing any improvement, she again consulted him. He now directed her to *blister* it, after which it increased in size with amazing rapidity, and became excessively painful. She then proceeded to Arklow, where she consulted Dr. Wright. This gentleman extirpated the tumour, and sent her home in a week after, impressed with the belief that she was perfectly cured. In about ten days after her arrival at home, however, the tumour again made its appearance in the same spot.

She returned a second time to Dr. Wright, who again removed the tumour, but without the same success, as the wound did not heal, and the tumour sprung up exactly in the same situation. She now went to Wexford, where she was attentively examined by several medical persons, who advised her to consult Dr. Kirby of Dublin. The tumour had by this time attained the size of a large kidney, and was excessively painful.

Dr. Kirby extirpated the tumour for the third time, and by his skilful and attentive treatment the wound healed perfectly, and she prepared to leave Dublin, satisfied that now at least she had no reason to apprehend any return. But she little knew how malignant and inveterate were the characters of her formidable enemy.

Dr. Kirby had not ceased his visits more than a week, before the part where the tumour had been, and the parts surrounding, became very painful; but no tumour made its appearance for more than three weeks after the wound had cicatrized. At the end of that period, five separate tumours, each of the size of a large pea, rose in different parts of the cicatrix and of the surrounding integuments. She now became quite disheartened at this recurrence of her sufferings, and only resolved to bear as patiently as she could what further awaited her. She accordingly removed to a small lodging in Lombard-street, where I paid my first visit, and where she remained until she died. I will not detain the society by relating minutely the daily notes of her case; but as far as truth and accuracy permit, I will give a general outline of her symptoms and of the treatment, &c., during the period of my attendance.

On my first visit her appearance was as follows. Her countenance was expressive of much suffering, alternately pale and flushed; her skin was dry and hot; tongue not foul; pulse rapid and weak; emaciation by no means as much advanced as might have been expected; she had no cough; her bowels were confined, but she represented them as being easily influenced by medicine; urine natural, both in appearance and quantity, and



Case of. Hemorrhoides



passed with ease; catamenia have made their regular and natural appearance until this last month; she never experienced any particular distress at those periods; a very oppressive fœtor from the tumour filled the room where she was lying. Her mind was collected and calm, and the relation of her sufferings detailed with greater accuracy and energy than I could possibly give them; her child was a fine healthy boy, and the various members of her family were all in good health.

I directed anodyne pills of the extract of conium and extract of hyosciamus to be taken every eight hours; and a purgative enema to be exhibited at night. The tumour was likewise ordered to be washed with a weak solution of the chloride of lime.

I now took an opportunity of measuring the extent of the tumour, which was as follows:

In circumference	- - -	$37\frac{1}{2}$ inches.
In length	- - -	15 ———
In breadth	- - -	$13\frac{1}{2}$ ———
In elevation from surface of abdomen	- - -	$1\frac{1}{2}$ ———

The external appearance will be better understood by an examination of the plate which I got drawn on the tenth day after I first saw her; and which most correctly delineates the appearance of the fungus in its various parts.

The disease proceeded without producing any very material accession to her sufferings, until my fourth visit, when I found her in great agony from retention of urine, the fluid only passing off in drops. I proceeded to examine the state of the urethral orifice, as I suspected that it might be engaged in the disease. Upon examination, however, it appeared that the fungus had grown rapidly in such a form as to overhang and press upon the orifice of the urethra, and thereby to produce an almost complete stop to the passage, while any attempt to raise the depressed portion produced such a degree of irritation

as to interfere with the introduction of the catheter altogether. This distress was, however, in some degree relieved by a draught of castor oil, which produced a copious stool and a considerable evacuation of urine. The effect of the medicine was attended with some vomiting. A severe cold which she caught by lying near a window, left inadvertently open during the night, brought on rheumatism of the head and neck, and a bad cough, in addition, seemed to form the climax of her misery. The hæmorrhage had not distressed her for some time ; but on the twelfth day of my visit, it set in with considerable severity, and reduced her to a great degree.

The discharge from the fungus became now very acrid, and excoriated all the neighbouring parts, so that she could scarcely move without great distress. The painfulness of the tumour increased daily, and seemed much to debilitate her. On the 14th, her speech became indistinct, and her intellects forsook her. Her pulse rose to 130 ; her tongue became furred and dry, and she had a constant drowsiness. On the 15th, she experienced some alleviation of pain ; the tumour became more and more depressed ; her intellects rallied, and she then retained them to the last, expiring at six o'clock the following morning.

Although particularly requested, no dissection would be permitted : a fact which I sincerely regret. I was, however, fortunate enough to gain permission to take a cast of the tumour, which, with the assistance of Mr. Smyly, I was enabled to obtain, and although hurriedly, yet sufficiently accurate to give a just idea of its size, &c. After death the body of this patient seemed by no means much emaciated. The fungus was more depressed than during life, and exhaled a fetid odour. On breaking into its substance with the fingers, its internal appearance was quite medullary, resembling the cerebral substance more than any thing else. A tolerably minute inspection did not enable us to discover the exact seat of the hæmorrhage. Upon lifting up the most depending portion, covering the labia pudenda, the parts underneath seemed free from disease.

Such are the details of a case, which for interest in a pathological point of view, is not to be frequently equalled. The interest which it produced in my mind, I am happy to say, was extended to the other medical friends, who attended with me at various intervals. The peculiarity of the situation, the natural and perfect state of the *functions* of the neighbouring organs, which seemed at least to hint that they were not engaged in the disease,—its determined inveteracy, and the deep suffering attending it, could not fail to excite the most sympathizing feelings. Indeed there *could* be few cases exhibiting a greater accumulation of misery, when, in addition to the agony produced by the disease itself, she at the same period laboured under retention of urine, constipation of her bowels, spasms of the lower limbs, rheumatic headach, and a harassing cough, which increased them all when it attacked her.

But in a moral point of view there was a lesson to be learned. The quiet endurance and meek resignation which she manifested under her sufferings, put to shame the too frequent petulance and impatience which medical men so often witness in those whose sufferings are comparatively trifling; and bore strong testimony to the truth of an observation made by the elegant writer for Blackwood, when contrasting the different relations of mental suffering: “In comparatively light affliction, the heart takes strange pleasure in aggravating its own sufferings by bitter fancies, and remembrances, and dark anticipations; but a *mighty grief* sufficeth unto itself in its terrible individuality.”

The following remarks, or rather deductions, which appear to spring from the foregoing as well as other cases, shall be as brief as the nature of the subject will admit of. The term *fungus hæmatodes* was one of many conferred on this disease by various writers. By Mr. Burns, of Glasgow, we find it described under the title of spongoid inflammation, subsequently by Mr. Hey, of Leeds, and Mr. Wardrop, as *fungus hæmatodes*; either of which denominations, the case already related might fairly assume for itself. The structure which this disease has

by some writers been described as possessing for its peculiar seat, is the glandular: but modified in some of its minute characters by peculiarities in the nature of the organ affected. This observation has been, in some degree, confirmed by a case of fungus hæmatodes of the stomach, in the *Medico-Chirurgical Journal* for March, 1830, where the tumour, in some respects, bore a striking resemblance to true cancer, and in others, to this disease: whatever be the actual primary structure in which this disease originates, it differs materially in the organs it attacks from cancer. Thus, we have met with cancer in the internal mouth and nose, fauces, stomach, intestinal canal, &c. places where fungus hæmatodes has been very rarely, if ever, found; and this latter, again, has been met with in the lungs, liver, spleen, and kidneys; organs in which cancer has never been demonstrated. We may indeed view it, as Mr. Burns describes it, a disease purely “*sui generis*.”

The commencement of fungus hæmatodes, when external, may generally be observed in the form of a small pimple or tumour, colourless and sometimes transparent, seldom painful to the touch. This want of sensibility is a too frequent cause of neglect on the patient's part, who generally permits the tumour to attain a considerable size before he applies for relief. Sometimes, however, a stinging pain is felt from its very commencement, not sufficient, it may be, to create uneasiness in the sufferer's mind, and by no means affecting the future inveteracy of the disease.

The surface of the tumour is smooth and polished, and exhibits vessels of various sizes ramifying on it. When touched it feels spongy and elastic, a sufficient mark to establish a diagnosis from true cancer.

After a time the skin gives way, and fungus-like projections shoot up; thin bloody matter is at first discharged, gradually increasing in quantity as the projections augment in size. The texture of these lesser fungi is soft and becomes every day softer, and when touched roughly, sometimes without any apparent

cause, bleed in many cases profusely, in others slightly. It soon begins to extend itself, spreading rapidly in all directions. The surrounding parts become engaged. The painfulness of the tumour having now set in with great intensity, hectic fever ensues, and the patient gradually sinks under the united force of pain and exhaustion.

In many respects the foregoing case manifested a correspondence with the above mentioned symptoms. The treatment, however, pursued at the commencement prevented its following the same course. Instead of being composed of one mass of substance, I could distinctly perceive separate divisions deeply descending through the tumour, evidently originating from the different points at which it made its final and most determined attack. This may be perceived by reference to the plate.

There could not be perceived any where in this case the membranous cyst spoken of by authorities, as enveloping the whole tumour. Mr. Burns states, however, that this cyst or membrane dips down between the divisions of the tumour, like the pia mater of the brain; but there was not even this form of covering perceptible in the case related. Upon the closest examination, I could not discern the slightest appearance of membrane on the surface. Its coating (if I might call it so) was composed of the dried discharge which collected on its surface, altered in its colour in various parts by the effects of the atmosphere. This discharge is always of an acrid kind, excoriating the surrounding parts; thereby, of course, adding to the distress of the patient; and at the same time exhaling a most offensive and oppressive odour.

From the *frequent* hæmorrhage which proceeds from the tumour, either when touched or on the least motion, the name of the disease has been derived. Sometimes this hæmorrhage is very profuse, and in general more so when the disease is internal. There are exceptions to this, however, the bleeding being in many cases slight, as in the case just described; for the extent of surface and the mass of disease, it being very trifling,

and only occasional. As the disease advances the pain becomes deep, extensive, and penetrating ; shooting in various directions with such sudden and piercing violence, as frequently to raise the patient several inches from off the bed. Conjoined with this there is a soreness of the parts which no application can relieve, and almost every application will aggravate. Such is a brief outline of the progress and character of this disease, as nothing more could be expected from a paper of this kind, where the time of the society demands conciseness. But before concluding, I may be permitted to say a few words regarding the pathology of fungus hæmatodes. Its nature and origin are to this day subjects of obscurity and of controversy : and indeed from the great progress which the disease makes in general, before an opportunity for examination is afforded, little, if any, satisfaction is to be obtained on the subject.

That it is a constitutional disease, however, I think may be fairly inferred, although not absolutely proved. In the first place, those patients who died of the disease, have almost invariably presented post mortem proofs that the disease existed at the same time in several different organs ; and that if removed from one part by operation it would appear subsequently in others. Secondly, we have the extreme difficulty of exterminating it. This has been strongly exemplified in the foregoing case ; for, if we had any misgivings with respect to the manner in which the operation was at first performed, we cannot possibly shelter ourselves under such an opinion, after the case passed through the skilful hands of Dr. Kirby. Thirdly, it is supported by analogy, for in every case of this nature, we shall find our patients ascribing the first appearance of it to some local injury ;—a blow, a fall, unusual pressure on a particular part, have at various times been reckoned among the causes of its origin.

But these effects are not apparent in every individual. Severe local injuries are attended with a certain degree of constitutional excitement, proportionate to the violence of the shock

received. In sound constitutions, this goes no further than is necessary to the support of the system. But not so in other cases. In them an injury of the most apparently trivial kind, will be followed by the most unhappy effects. Irritative fever will sometimes follow a slight scratch, which most people would consider as nothing. I have seen the most extensive cerebral injury produce not one single dangerous symptom ; while it is well known how deceptive as to its effects may be a trifling blow on the head. How frequently has it occurred, that females have got cancer of the breast from some awkward pressure, while others have suffered there much more severely without such an effect. There was a woman in Barrington's hospital, in Limerick, who died some months ago of cancer of the rectum, in consequence of a slight kick which she received while lying asleep on a straw bed on the ground. I need not say how often similar, though somewhat more severe applications are made to the same part without any more grievous result than the disgrace connected with it. Whence does all this proceed if not from a *peculiar* constitutional predisposition to some particular disease. For instance, the woman just spoken of might have had her head broken, and yet recovered without a bad symptom ; but the irritation produced by the slight injury she received was sufficient to awaken at once all the morbid peculiarities of constitution, because applied to a part over which that predisposition exercised a peculiar influence. The well known theory in medicine, that there cannot exist more than one constitutional disease in an individual at the same time, may, I think, be carried farther, and I would hint, that there can be only one *morbid predisposition to organic disease* in the same individual. And here I would observe, (upon the same grounds,) that there must be a predisposition to that disease, organic or otherwise, in the individual affected, before any disease can be established in the system. This may account for the unceasing contention respecting the presence or absence of infection in fever, cholera, and plague ; and that the only difference existing be-

tween the characters of the two forms of predisposition is, that in organically morbid constitutions, that predisposition exists from the birth ; in the other it may accede at any period of life, and at different periods, according to various alterations in the state of the system during life. But this is a digression, and must be arrested, although one of most intense interest to the physician in every point of view. Mr. Wardrop concludes, from dissections of the eyeball, affected with fungus hæmatodes, and from its appearances in other parts, that the seat of the disease is in the nerves. As far as regards texture and appearance, there cannot perhaps exist a stronger analogy between any two diseases than between fungus hæmatodes and fungus cerebri. The manner in which they commence ; their tendency to hæmorrhage ; their obstinacy of growth ; and indestructibility either by ligature or scalpel ; their outward colouring and fatal character, at once impress the mind with the close resemblance ; while the similarity of their substance assists in confirming the conjecture, that if they be not the same disease they are yet similar in their origin. There was a case of fungus cerebri in the county Limerick Infirmary, in which I witnessed extirpation of the tumour (as far as it was possible) three times ; twice by ligature and once by scalpel, with temporary relief ; it, however, ultimately proved fatal. It may be worthy of remark, that the substance composing the mass of fungus hæmatodes possesses many chemical properties in common with those of the brain.

As to the treatment, I have nothing satisfactory to state, therefore I will not engage the time of the society by useless propositions for curing it. Enough has been learned to satisfy us on the subject of extirpation ; and I feel convinced, that as to the use of palliative measures, I can suggest no means in which the society will not already have anticipated me.

ART. IV.—*Observations on the Treatment of Various Diseases.* By ROBERT J. GRAVES, M. D.

(Continued from Vol. IV. page 328.)

I. On Effusion of Air within the Chest in Inflammation of the Lungs.

II. Bruit de Soufflet of the Heart, and throbbing of the Chest in Pneumonia.

III.—Symmetrical Erysipelas.

IV.—On the best method of administering Calomel in acute Inflammations.

V. Spontaneous cure of Chronic Ascites.

VI. Diffuse Inflammation terminating fatally in consequence of effusion within the chest.

VII. Loss of the sense of Smelling.

VIII. Carbonate of Ammonia in the Urine.

IX. On Albuminous Urine in Dropsy.

X. On Diabetes Insipidus.

ON EFFUSION OF AIR WITHIN THE CHEST IN INFLAMMATION OF THE LUNGS.

IN the twelfth number of this Journal I detailed the particulars of two cases of *simple pneumothorax*, and have since had the satisfaction of meeting with another case fully corroborating the opinions then advanced, and establishing the existence of such a disease.

The Rev. Mr. —, a gentleman about 40 years old, with a largely developed chest and robust frame, caught cold, and was attacked with cough, pain in the right side, bloody expectoration, and in short the usual symptoms of very intense pneumonia, commencing in the inferior portion of the right lung, but advancing rapidly upwards, until the whole of that lung was engaged in the disease. As the inflammation extended the inferior portion of the lung became engorged with blood, and

totally impervious to the air, and consequently the part of the chest corresponding to it every where yielded a dull sound on percussion, while the superior part of the right side was as sonorous, when percussed, as the left or healthy side of the chest. Such was the state of things on the third day of the disease. On the morning of the fourth day a remarkable change was found to have occurred in the course of the night; anteriorly the dulness of the lower portion of the affected lung still continued, and indeed, could not be greater, but from a little below the right mamma, as far up as the clavicle, which region, at the preceding visit, was naturally sonorous, the chest yielded a preternaturally clear and hollow sound, that at once attracted the attention of Dr. Marsh and myself: for twelve hours previously no such morbid clearness had existed. No respiratory murmur whatever could be heard in this region, and consequently we were led to the conclusion, that the subjacent lung was here pushed back and compressed by air effused into the cavity of the pleura.

As the disease was altogether confined to the right lung, we could more accurately compare and contrast the phenomena presented by the corresponding region of the left side of the chest, with those observed on the right, and we found that the former, naturally sonorous, and of course much less clear, on percussion, than the upper portion of the right side, was performing its proper function with increased energy, every where presenting well marked puerile respiration. The existence of pneumothorax occupying a considerable portion of the right pleural cavity, was therefore evident, but the source of the air was not so clear. I reminded Dr. Marsh of the other case already published, in which I observed pneumonia combined with simple pneumothorax, and after a careful consideration of all the symptoms of our patient, he concurred with me in thinking it highly probable that the present case was one of a similar nature. Our patient had a well formed and remarkably capacious chest, was of a very strong constitution, and before this

attack, enjoyed an uninterrupted state of good health. In such a person the pre-existence of tubercles was most improbable, of a tubercular abscess almost impossible; we therefore rejected the idea of the effused air being derived from the bronchial tubes, through the medium of a fistulous communication, and adopted the opinion, that the pneumothorax was caused by air suddenly secreted by the inflamed pleura. The correctness of this opinion was established beyond the possibility of doubt, both by the subsequent progress of the symptoms and by the speedy and perfect recovery of the patient; for it is almost unnecessary to observe, that a recovery where pneumothorax depends on a fistulous communication is, if indeed it ever takes place, of the rarest occurrence, and never takes place rapidly. At our next visit, in about sixteen hours after, we found the whole region, that had been preternaturally clear on percussion, now dull as possible, and presenting a very obscure respiratory murmur, mixed with some crepitus. The crepitus was evidently close to the ear, if I may use that expression, and we now felt no doubt that the air so suddenly effused, had been as suddenly absorbed, and its place occupied by the inflamed and engorged lung. In the course of four or five days, under proper treatment, this dulness began to diminish, and nearly disappeared in a few days more, during which time the respiratory murmur proportionably increased, and the gentleman afterwards rapidly recovered. It is peculiarly gratifying to me, that the preceding facts fell under the notice of a physician of such experience as Dr. Marsh, upon whose accuracy of observation such full reliance may be placed.

BRUIT DE SOUFFLET, AND THROBBING OF THE CHEST IN INFLAMMATION OF THE LUNGS.

Another phenomenon, observed in the progress of the foregoing case, strongly attracted the attention of Doctor Marsh and myself, bruit de soufflet, of the most distinct and loudest sort, audible not merely in the region of the heart, but over the entire

front of the chest. This *bruit* did not exist in the *subclavian* or *carotid arteries*; Dr. Marsh, who watched the case with the utmost care, is quite certain that no such sound accompanied the action of the heart in the commencement of the pneumonia; it was not until considerable dulness and disappearance of respiratory murmur over the lower portion of the lung had taken place, that the *bruit de soufflet* began, increasing in intensity as the inflammation of the right lung spread upwards. This new symptom caused us much uneasiness, and naturally induced the fear that the inflammatory action was not confined to the right lung, but had extended to the heart and great vessels, an occurrence that would have rendered the case almost hopeless. Our fears made us attend to this symptom with the greatest anxiety. For several days it continued without the slightest abatement, but at the period when the stethoscope and general symptoms indicated a notable diminution of the inflammation, then the *bruit de soufflet* began to diminish in loudness and intensity, and in the course of four days altogether disappeared. Leaving to others the explanation of so remarkable a symptom, I shall at present merely observe, that the occurrence of *bruit de soufflet* in the heart, in cases of pneumonia, must be rare, for it is not even mentioned by Laennec, one of whose observations indeed seems to imply, that such an occurrence was unknown to him, for he says in speaking of *bruit de soufflet* in the heart, "on the other hand, we never meet with this sound in direct febrile excitement, unless the individual is at the same time very nervous."

Now in the case before us the *bruit* was evidently connected not with the state of the nervous system, but with the pneumonic inflammation, for, exactly in proportion as that increased or diminished, the intensity of the *bruit* varied.

In the case above related we had also an opportunity of observing that peculiar throbbing of the chest, which so often accompanies pneumonia, and which Laennec considered as caused by the impulse of the heart, transmitted through the hepatized

lung. This explanation of the phenomenon in question does not appear to me altogether satisfactory. In the first place, the throbbing is too strong to be derived from this source. Thus, in the case of the Rev. Mr. —, Dr. Marsh and I found that the pulsation was as strong at the right mamma, and even far above it, as it was directly over the heart itself. If the pulsation depended on the stroke of the heart propagated through a solid body, its strength at any one point would be weakened in proportion to the size of that body. It is for this reason that a man bearing a large anvil on his chest, scarcely feels the blow when the anvil is struck by a sledge hammer. Now, in the instance before us, the pulsation extended all over the front of the right lung, a great distance in a man with so large a chest, and in most parts was as strong as the pulsation of the heart itself, and, therefore, the latter could not cause the former by mere propagation through the medium of the hepatized lung. In the second place, it is not easy to conceive how the impulse of the heart, propagated through the lung, could impart to it not merely motion, but such a motion as every where causes a pulsation against the side, that beats distinctly against the end of the stethoscope, lifting up at each stroke the hand or ear of the observer, and imparting distinctly the sensation, that the throbbing is produced by something within, not moved laterally, as the *solidified right lung* would be by the stroke of the heart, but tending with considerable force outwards in every direction, like the pulsation of a subjacent aneurism. In truth, the throbbing adverted to simulated most exactly aneurismal pulsation in every respect, except in being so widely diffused and so nearly equal in force over the whole space it occupied. By what then was it produced? To answer this question we must enumerate the physical changes produced by inflammation in the lung. The pulmonary tissue was not solid, for neither bronchial respiration or bronchophony existed, but it was gorged with blood, and instead of its usual light and spongy texture derived from a vast number of cells filled with air, exhibited no

doubt that injection and obstruction of all its parts, with a fluid more or less sanguineous, which Bayle and Laennec have termed *engouement*. While in this soft, engorged, and as it were, semi-fluid state, it is easy to conceive why the lung, connected with the heart by such vast vessels, should pulsate with a strength almost equal to that of any aneurism. The brain pulsates notably at each stroke of the heart, and cerebriiform and fungoid tumours, on the surface of the limbs and body, have, for this very reason, occasionally a pulsation so strong and distinct, as at times to have deceived the surgeon into the belief of their being aneurismal.

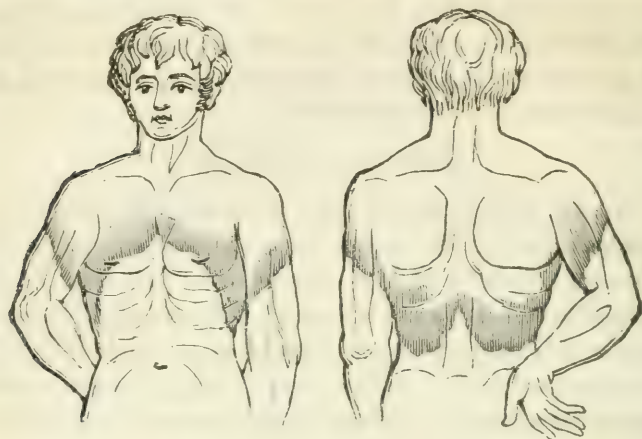
When the lung is solidified, in consequence of the inflammation proceeding still further and causing hepatization, then each stroke of the heart will be felt and heard over a great extent of surface. This happens, likewise, in cases of tubercular solidification, and has elicited some excellent observations from Dr. Townsend; but in neither case would the observer be ever inclined to compare the motion imparted to the parietes of the chest to that caused by the stroke of a subjacent aneurism. *Whenever this pulsation or throbbing of the inflamed lung is observed, it indicates a disease of considerable danger and violence,* for the action of the heart is in such cases greatly excited, and is in general extremely difficult to reduce to its natural standard. In some cases of this nature, the action of the heart is sufficient to induce pulsation and throbbing, not merely in the inflamed lung, with which it is directly connected by means of enlarged vessels, but also in the superficial veins of the extremities, an occurrence proving the correctness of the explanation of pulmonary throbbing, which I have given. Thus in the case of a gentleman labouring under pneumonia, attended by Mr. M. Collis and myself, the action of the heart was very powerful, and a *distinct pulsation* corresponding to each stroke of the left ventricle, was perceptible in all the veins of the back of the hand. Mr. Crampton witnessed this curious phenomenon.

A lady residing in Parliament-street was attacked with very acute peritonitis ; venous pulsation was in her case also quite evident ; it was seen by Dr. Ireland, Mr. Crampton, and myself. These are the only cases of distinct pulsation of the veins of the extremities which I have seen, and as such I have thought it right to mention them incidentally.

SYMMETRICAL ERYSIPELAS.

A case which occurred lately in the medical wards of the Meath hospital, excited a good deal of interest among the students, and afforded a striking example of the symmetry of form assumed by certain diseases of the skin. In the months of May and June an epidemic tendency to erysipelas was observable both in hospital and private practice ; and in numerous instances this disease was observed to follow the application of leeches, blisters, setons, &c. During this period it was thought necessary to insert a seton in the nape of a young man labouring under hemiplegia. Erysipelas was the consequence. The redness spread from the neck to the face and hairy scalp, and at the time that it began to subside in these parts, proceeded downwards over the skin of the chest and arms. The outline of the erysipelas was remarkably well defined, and its rate of progression equable ; about the fifth day from its first appearance it had involved most of the chest, and the upper part of the arms, and was now remarkable for the perfect similarity of form and extent exhibited by the halves into which the whole was divided by the median line. It did not, indeed, seem to have advanced on one side at all more than on the other, and on both the outline was exactly the same ; the space it occupied on one side of the median line, was in short a fac simile of that it occupied on the other, a coincidence, rendered more striking by the devious and apparently capricious course the eruption followed. Thus, when it arrived at the top of the shoulder, it did not proceed along the outside of the arm further than the insertion of the deltoid, from which point it spread obliquely downwards, nearly to

the opposite extremity of the biceps, as is exhibited in the annexed sketch.



In like manner, it will be observed, that when it reached a central point on the sternum, it proceeded with a curved outline, avoiding the mamma on each side, and sloping downwards, to form on the back a figure resembling two festoons. It is clear that both anteriorly and posteriorly it spread much more slowly along the median line, a circumstance probably connected with the great density of the skin and subcutaneous cellular tissue, here more fibrous than elsewhere, and less vascular. Its stopping at the insertion of the deltoid may have been owing to a similar cause. Numerous instances might be brought forward of cutaneous disease journeying onwards at exactly the same rate in one part of the skin as in another, for to this is owing the circular figure assumed by many varieties of lepra, herpes, impetigo, porrigo, &c., when the morbid action, originating in one spot, spreads equally all around, progressing in the circumference and ceasing in the centre. The circular form of fairy rings in pastures, the true nature of which was first pointed out by Dr. Wollaston, affords an example in the vegetable kingdom of an analogous equability of progression from a central point.

ON THE BEST METHOD OF ADMINISTERING CALOMEL IN ACUTE INFLAMMATION.

Although the antiphlogistic effects of calomel are well known, and every day witnesses examples of inflammations cured by its exhibition, still practitioners are not agreed as to the doses in which this powerful remedy ought generally to be given. The following remarks, derived from very extensive opportunities of observation, apply not to the treatment of chronic diseases, not to that of inflammations, either slight in degree or occupying parts not essential to life, but to those violent attacks of inflammatory action which so often prove fatal, in the course of a few days or even hours, by destroying the texture and function of vital organs.

If a person is seized, for example, with very acute pericarditis, how unavailing will be our best directed efforts unless they be seconded by a speedy mercurialization of the system? In proof of this assertion I might adduce a considerable number of cases of pericarditis, treated both in hospital and private practice, and might triumphantly compare the results with those obtained in the continental hospitals, as recorded by some of the most eminent German and French physicians. When even the most violent attacks of pericarditis are met with copious venesection, repeated leeching, and the rapid ingestion of calomel, few patients will be lost. If, on the contrary, the practitioner relies solely on the lancet, if in the beginning, as I have seen done, he applies a blister over the heart, and if he defers the exhibition of calomel *or insufficiently uses it*, then will he have occasion to regret the consequences, and witness either the speedy death of his patient, or his condemnation to the sufferings entailed on him by adhesions, valvular disease, and the other sequelæ of badly treated pericarditis.

What has been said of pericarditis applies equally to the *more acute and violent forms* of peritonitis, hepatitis, pneumo-

nia, pleuritis, and dysentery. The latter disease rarely occurs with such violence in this country as to require the method of mercurial treatment so successfully practised in the East and West Indies, and which is precisely the mode of treatment I now venture to recommend in the above mentioned diseases, whenever their attack is very violent, and they threaten an immediate destruction of life. In any acute and sudden iritis, when vision is so speedily endangered, the same treatment is applicable.

The mode of exhibiting calomel referred to, is well known to all those who have practised in tropical climates, and has been most clearly explained, and its advantages placed in the true light by Dr. Johnson, in his classical work on the Diseases of Tropical Climates. He proves, by numerous examples, that when an inflammation threatens the destruction of a vital organ, then, in addition to the lancet, and other antiphlogistic remedies, we ought to affect the constitution decidedly and as speedily as possible, by means of calomel given, not in small doses, often repeated, but in doses of a scruple, once, or even twice daily. These larger doses, he observes, are much less apt to be rejected by the stomach, much less likely to gripe or produce troublesome purging, than small and frequently repeated doses. In this assertion of a fact, so curious and so difficult to explain, he is borne out by the testimony of every writer who has practised in the East or West Indies. The opponents of this practice here, have frequently observed, that such doses of calomel may, it is true, be given with advantage in hot climates, and may be well suited to the constitutions of persons inhabiting tropical countries, but we cannot thence infer that they may be exhibited either with safety or benefit to Europeans in their native climate. This observation, no doubt, deserves attention, but its weight must fall to the ground, if experience, contrary to the generally received opinion, shews that, with proper precautions, calomel may be given in as large doses here as in the East Indies. I am particularly anxious not to be misunderstood, and

should be very sorry to see myself ranked among those who have recourse to mercury on every occasion, and who may be said to abuse not to use calomel in their practice. Mercury in even the mildest form should not be given, except the nature of the disease imperatively calls for its use, and in those cases only where no other remedy will effect the same purpose. Calomel in large doses, or even in small, I scarcely ever order except life is in danger, or an important organ (as the eye in iritis) threatened with destruction. In chronic complaints, in dyspepsia, constipation, &c., the prudent physician will scarcely ever order mercurials in any shape, for, as I have explained in a former communication, the blue pill system of Abernethy and others has been productive of infinite mischief. Many army surgeons, on their return from the East, have continued to use scruple doses of calomel in acute diseases; but their example has not generally been followed, and I am pretty certain, that in Dublin I was the first who, both in hospital and private practice, had recourse to such doses. When life is in danger, and we have determined on this method of treatment, the following precautions are to be observed. The patient must take no cold fluids; whatever he drinks must be moderately warm; barley water, without lemon juice, should be preferred; and he should not consume more than three pints of drink in the twenty-four hours, as too much drink disturbs the stomach and bowels, and favours mercurial diarrhoea. Grapes and all fruit must be withheld, a precaution too often entirely neglected, much to the patient's injury, for I have seen a tympanitic state of the abdomen induced by fruit, particularly grapes. In the south of France, in Italy, and in Spain, grapes form a most useful article of diet in inflammatory and feverish complaints, but they are there generally of a better quality than those we here commonly meet in the sick room, and besides they form a common article of diet during health. Be the reason of the difference what it may, I can assert from experience, that in this city the physician will act wisely in forbidding grapes altogether in fevers, and still more

in all diseases where he thinks it right to give mercury internally. When we wish a scruple of calomel to be taken at once, an excellent method is to place the powder on the tongue, and make the patient wash it down with some thin gruel, or else it may be given in the form of a bolus. In most cases, one such dose daily is sufficient, but it now and then happens that very imminent danger will prompt us to give a second dose after a lapse of twelve hours. By this management we are often enabled to mercurialize the system fully, in a very short space of time indeed, and we thereby not only cut short a dangerous inflammation, and save our patient's life, but we often effect this purpose without exciting any considerable griping pains or bowel complaint. Such accidents will of course occasionally happen, no matter how mercury is introduced into the system, no matter whether administered in the form of inunction or internally; but I can safely appeal to the students of the Meath Hospital, who have witnessed my treatment of the pneumonia and pleurisy epidemic last winter and spring, for confirmation of the assertion, that the curative effects of this mode of giving calomel were most striking, while the occurrence of griping or bowel complaint was comparatively rare, a circumstance partly owing also to the care taken to prevent such patients from being exposed to cold.

Another point well worthy of attention remains to be considered. In general it is supposed, that at the period mercury is about to affect the mouth, it produces a certain degree of constitutional fever, acceleration of the pulse, &c. Now, I can assert with confidence, that when fever produced by inflammation, such as pericarditis, pleurisy, &c. has existed before the calomel was exhibited, the latter will, in nine cases out of ten, produce, at the moment the mouth becomes affected, a marked abatement of fever, a marked diminution of the frequency of the pulse. For the truth of this assertion, I again appeal to the students of the Meath Hospital. When, as will happen in some cases, particularly such as have been neglected at their commencement, this diminution of fever, this retardation of the

pulse does not accompany the mercurialization of the system, let not the practitioner deceive himself; it is a bad sign; it is a still worse, if the pulse becomes accelerated, and the fever increased: in such cases the disease is rarely arrested in its progress. This observation may seem unnecessary, but I know that it is important, for I myself have been deceived, and I have seen others of far greater experience deceived at such a crisis into the belief, that the increase of fever and the acceleration of the pulse was owing to the mercury, and not to an aggravation of the disease. Another most important question is, whether mercury so used for the cure of internal inflammations, injures the constitution permanently; with the greatest confidence I can answer it does not. I never saw a single bad effect follow the use of mercury, in cases where the first consequence, of its exhibition was the rapid and complete removal of a dangerous inflammation: a remedy can scarcely serve and hurt the constitution at the same time. Mercury, when it abates inflammation never irritates the system; and if it be discontinued when it has performed this important office, its after-effects will be employed in the same way, in curing the remnant of the inflammatory action. In this I entirely agree with Mr. O'Beirne, who in the April number of this Journal, has most successfully combated the generally received dogma, that mercurialization of the system cannot be employed in the treatment of acute inflammations in scrofulous habits. Whatever cuts short the inflammation, provided it be applied in due proportion, cannot injure the constitution.

In the foregoing observations, I have not adverted to the combination of opium with calomel, as the circumstances which call for the addition of opium are sufficiently well known.

SPONTANEOUS CURE OF CHRONIC ASCITES.

About five years ago, I was first consulted by my friend and colleague, Mr. Porter, concerning a very remarkable case of ascites; the patient, a lady residing in the neighbourhood of

Dublin, had then laboured under the disease for eight years. The abdomen was enormously enlarged, exceeding far in size that of a woman in the ninth month of pregnancy. It was tense, and, on percussion, afforded a most evident fluctuation. There was no pain felt in any part of the belly, nor was it at all tender on pressure. The lady's general health was good, and she complained of nothing except the deformity and unwieldiness produced by so great an accumulation of fluid within the cavity of the peritoneum.

This accumulation had taken place very slowly indeed, nine years having elapsed since its first commencement, during which time its increase had been equably progressive, that is, it did not appear to accumulate faster at one period than at another. Under these circumstances, it was not judged right to attempt any thing for her relief. Being employed as medical attendant upon other members of the family, I had, during the succeeding years, frequent opportunities of observing the state of the abdomen, which latterly did not appear to increase in size, and for the last year was evidently stationary. So matters continued until six months ago, that is, thirteen years from the first origin of the disease, when I was called to visit this lady, under the following circumstances. The catamenia, which had never been irregular, but constantly scanty, suddenly became profuse and much more frequent, returning every fourteen or sixteen days, and lasting six or seven. This was soon followed by a most copious discharge of urine, and a rapid diminution in the size of the belly. The diuresis indeed was so great, and the decrease of the tumefaction so sudden, that much alarm was naturally excited in the minds of herself and family. She complained much of debility, to remedy which I allowed a free use of wine negus, and applied compression to the abdomen by means of properly adjusted swathing. In less than a week, profuse night sweats commenced, which still further accelerated the disappearance of the ascites, and in about a fortnight from the time the diuresis began, there was no vestige of the ascites, and

the integuments of the abdomen, relieved from their previous state of enormous distention, hung pendulous, as she herself expressed it, like an empty purse. The diuresis and sweating now gradually ceased, the catamenia became normal, and a nutritious diet speedily restored her strength, and she reappeared in society, to the astonishment of all her acquaintance, with an extremely delicate and slender waist.

The connexion which this case exhibits between the catamenial discharge and the peritoneal secretion, is interesting in many points of view too obvious to be noticed.

DIFFUSE INFLAMMATION TERMINATING FATALLY IN CONSEQUENCE OF EFFUSION INTO THE CHEST.

The two following cases excited a great deal of interest at the time of their occurrence, and seem worthy of being recorded for several reasons. In the first place, the symptoms and appearances, on dissection, bear a striking analogy to those cases of diffuse inflammation, which, originating in a wound received in dissection, have terminated in sudden pleural effusion. Thus, in the post mortem examination of Mr. Young, described by Dr. Duncan, in the *Transactions of the Medico-Chirurgical Society of Edinburgh*, vol. i. p. 500, the very same state of the muscles externally, and of the chest internally, was found, as we observed in both our patients. It is true that this pleural affection is a rare occurrence in the diffuse inflammation arising from wounds, three cases only of this nature having fallen under the Doctor's notice, although he describes nearly forty; but we may presume that it would have taken place much more frequently, if the diffuse inflammation had its principal seat on the anterior part of the chest, which was seldom the case; for the diseased action usually spread along the arm by the axilla, to the side or back of the trunk. In the second place, one of my cases exhibits, what did not fall under Dr. Duncan's notice, diffuse inflammation with œdema of the mucous membrane of the throat.

On the whole, the affection which proved fatal in the two

following instances is not, I have reason to believe, *extremely rare* ; for I found that Mr. Cusack was familiar with the disease, although, as far as I know, it has not been even noticed by any author who has written professedly on diseases of the chest.

John Smyth, aged 22, was admitted into the Meath Hospital, November 11th, 1833. He was affected with fever, which commenced with rigors on the 6th of November, and was evidently produced by exposure to cold when heated. Before his admission his bowels had been moderately acted on by aperient medicines.

November 12th. Raved a good deal last night after his admission ; gets scarcely any sleep ; tongue foul, brown in the centre, and not protruded with a tremulous motion ; not much thirst ; *no cough ; chest every where sonorous ; respiration tranquil and natural* ; abdomen soft and without any pain or tenderness ; bowels moderately opened ; skin hot, but soft, and free from any eruption ; his eyes are somewhat suffused, and he chiefly complains of headach ; pulse 112.

Cold applications to the head, leeches repeatedly applied behind the ears, effervescing draughts, and moderate doses of blue pill, combined with extract of hyoscyamus, gave him some relief. Exactly at the end of the seventh day from the commencement of his illness, he was attacked with some epistaxis, attended with considerable raving during the night. This induced us to apply a leech to the inside of each nostril, which, with aperients, and a small blister to the nape of the neck, produced an immediate diminution of the cerebral excitement, followed by tranquil sleep. On the eleventh day of his illness he became deaf, and continued to improve steadily, although never quite free from fever, until the evening of the 26th November, *which was precisely the twenty-first day of the fever*. I should have remarked, that for five or six days previously he had a trifling bronchitis.

On the evening of the 26th November, a new series of symptoms unexpectedly commenced. The patient suddenly felt

himself unwell and very weak, and was immediately attacked with recurring rigors, followed by feverish symptoms, some soreness of throat and difficulty of swallowing. These symptoms increased during the night, and his respiration became difficult.

27th November, 9, A. M. Respiration laborious, hurried, forty-four in a minute, and accompanied by a crowing croup-like noise, the impediment to breathing evidently being situated in the larynx, which was thrown into strong action at each inspiration, while the motions of the chest and abdomen were comparatively tranquil; face much flushed and anxious; a good deal of swelling exists on the external part of the throat beneath the lower jaw, which parts are scarcely red, but are extremely tender to the touch. The same sort of œdema exists internally, occupying the velum, uvula, and tonsils, so as nearly to close the aperture of the fauces. The mucous membrane lining these parts has a transparent appearance, and is but little, if at all, redder than natural. On passing the finger downwards to the epiglottis, that body was found of its natural size. His hearing, which he had partially recovered, was again lost; pulse 140, weak; skin hot; bowels regular; can swallow fluid, but with difficulty. The chest sounded every where well, except in the postero-inferior portions of both lungs, where there was slight dulness; moist bronchitic rales are every where heard, mixed, in the parts above specified, with some subcrepitus, resembling that produced by incipient œdema, or engorgement. The most active steps were taken to meet the impending danger. Leeches, four at a time, were repeatedly applied to the throat externally, where the œdema was greatest; a blister was applied to the nape of the neck, and tartar emetic was exhibited internally, while a strong solution of nitrate of silver was applied to the mucous membrane of the throat.

On the 28th November his debility was increased, and although both the external and internal œdema had subsided,

and the croup-like noise was much less, his respiration was not relieved, and yet his expectoration was copious. Under these circumstances it was judged advisable to lay aside the use of tartar emetic, and substitute a stimulating expectorant, consisting of mucilage, syrup, camphorated tincture of opium, decoction of polygala, and a small quantity of carbonate of ammonia. He was allowed some wine, and large sinapisms were applied over the front of his chest.

On the 29th, the croup-like noise had altogether ceased, but his breathing became more difficult and hurried, being sixty-four in a minute; expectoration copious; sputa tinged with blood; countenance preserves the same anxious sunk appearance it has had from the very beginning of this attack; pulse 140. He continued to sink, breathed with more difficulty, and died on the morning of the 30th.

Autopsy twenty-four hours after death.—The body only slightly emaciated. On making an incision from the chin to the umbilicus, the muscles of the thorax and abdomen were found red and firm: those of the neck pale and soft, and the cellular tissue infiltrated with a yellow sero-gelatinous fluid. The sternum and cartilages of the ribs being raised, the cellular tissue between the anterior mediastinum and the sternum presented the same appearance as that in the neck. Effusion into both cavities of the chest, amounting to two quarts of a sero-sanguinolent fluid, in which floated flocculi of lymph. Lymph deposited on the surface of both lungs; but most evident over the interlobular cellular tissue: it was soft, and only occurred in patches. Cellular tissue of pericardium infiltrated with the same jelly-like substance as noticed on anterior mediastinum. Heart firm and contracted, the pericardium full of turbid serum, containing flocculi of lymph, and at the base of the right ventricle *an ecchymosed spot about the size of a shilling*. The substance of the lungs was crepitant, and no spots of induration could be detected.

On opening the larynx the chordæ vocales were found

slightly thickened, but otherwise healthy, as were also the parts about the pharynx; abdomen not examined.

Bridget Masterson, æt. about 50, married, has six children, whom she supports by hard labour; lives in consequence upon a very scanty allowance of the worst food, and suffers other privations; was admitted into the Meath Hospital, November 15, 1833.

16th. At the daily visit she was found tossing herself about in bed, moaning, and when questioned, complained of excessive pain in the right side. She stated that she had had some cough and dyspnœa, with pain in the right side, for about nine days; that within the last three or four days she had felt a painful swelling of the upper part of the chest and neck on the same side, and accordingly, on examination, there was found a diffuse, colourless, and extremely tender swelling, occupying the situation of the pectoral muscle, extending up the right side of the neck, and particularly prominent in the interval between the two sterno-mastoid muscles in front of the trachea. The slightest pressure on any part of this swelling appeared to give great pain; it pitted slightly on pressure, but gave no sense of fluctuation in any portion; it did not crepitate, and though on coughing, it protruded considerably in front of the trachea, it gave no impulse. The patient swallows without difficulty, and respiration, though very much hurried, is not laborious. The cough is accompanied with a loud rattle, and, on applying the stethoscope, sonorous and mucous rales are heard every where over the inferior portion of the right lung; these signs appear *muffled*, and the sounds of the respiration and cough are feeble: percussion gives a duller sound here than over any other part of the chest. Her skin is cool; face and lips slightly livid; pulse rapid and weak; tongue white; bowels regular. Patient is not aware of having received any injury; but her account of the history and progress of her symptoms was very imperfect, her intellect appearing to be affected. Eight leeches were applied under the right clavicle, and she was ordered a narcotic pectoral mixture.

17th. Patient passed a sleepless night ; moaning and jactitation are now incessant, with delirium at intervals. Her complaint is still of the excruciating pain in her side and neck ; respiration hurried, with loud tracheal rattle ; countenance more livid ; swelling much the same as yesterday. In the course of the day delirium increased, she could scarcely be kept in bed, but otherwise was not violent ; she died about 5, P. M.

Dissection twenty hours after death.—The external swelling had entirely disappeared. On laying bare the cellular membrane of the neck and thorax, it was found condensed and matted together by lymph and infiltrated with serum ; here and there were points of apparently commencing suppuration, the pus being only imperfectly formed and in small quantity. The lower part of the sterno-mastoid, sterno-hyoid and thyroid, and the pectoral muscles, had undergone a remarkable transformation, appearing white and soft, but retaining a sort of fibrous arrangement. On pursuing the dissection into the thorax, the cellular membrane of the anterior mediastinum and of the root of the lungs was found infiltrated with serum, and having points of softening, similar to those in the neck : a great quantity of lymph was effused here also, matting the parts together. The cavities of the thorax, particularly the right pleura, contained a large quantity of bloody serum, and the serous membrane of the lungs and heart was studded thickly over with spots of various sizes resembling purpura. *On the surface of the heart some of these were of considerable size, and on cutting into the organ, were found to extend far into its muscular structure.* The heart was very soft. The right ventricle almost pulpy ; both sides contained a large quantity of dark blood of the consistence of syrup. On sliding up the aorta, its lining membrane was found to be of a deep vermilion colour ; darker in patches. The bronchial tubes contained a large quantity of bloody mucus, and the lining membrane was of a dark red colour. The substance of the lungs appeared healthy, with the exception of the posterior portion of the right, which was in a state

of excessive engorgement, apparently not inflammatory, and from which a treacley black blood oozed on its being cut into.

LOSS OF THE SENSE OF SMELLING.

I had lately an opportunity of observing a very singular case of the total loss of the sense of smelling, occasioned by exposure to the effects of a very strong and disagreeable odour. Mr. —, formerly a captain in a yeomanry corps, was attended by Mr. Barker of Britain-street and myself. He was affected with ascites, and in the course of conversation one day, mentioned that in the Irish rebellion of 1798, information was received by the magistrates, that five hundred pikes were concealed in one of the markets of this city, buried at the bottom of a large cesspool, which was filled with the offscourings of the market and all manner of filth. He proceeded to the place, and superintended the work of emptying out the cesspool, at the bottom of which the concealed arms were found as specified. During this operation he was exposed to most abominable effluvia, and suffered greatly at the time from the stench. Next day he found that he had become entirely insensible to odours, and since that, now a period of thirty-six years, he has remained completely deprived of the sense of smelling. From this it appears, that as exposure to very intense light may produce amaurosis, so exposure to intense odours may produce a corresponding affection of the olfactory nerve.

CARBONATE OF AMMONIA IN THE URINE.

I was the first, I believe, several years ago to announce the discovery of carbonate of ammonia in urine *recently voided*, and that in considerable quantity, causing the fluid to effervesce briskly on the addition of an acid. The observation did not excite the attention, if it met the eye, of Dr. Prout and others who have since written on the composition of the urine in disease. As a second case of the kind, however, has very lately come under my notice, I think it well to return to the subject

The case, the particulars of which I formerly published, was that of a young man labouring under long-continued fever, attended with petechiæ. The urine contained carbonate of ammonia for four or five days, at a time he was extremely bad. As he improved, this salt disappeared. We at first thought it might have been formed in consequence of the urine undergoing decomposition in the bladder ; but it was proved that this was not the case, for when the bladder was completely emptied, the urine formed in it in two hours afterwards was found equally loaded with the same salt. There was no disease of the mucous membrane of the bladder whatsoever, and we therefore were justified in concluding, that the carbonate of ammonia existed in the urine as secreted by the kidney. Although I afterwards examined the urine of numerous fever patients, I never met with the same salt. The case now under our observation at the Meath hospital is very different indeed in every thing but the presence of this salt in the urine. A strong and athletic man, employed by the ballast board as a labourer, had occasion to work several days standing up to his knees in water. Being at the time constipated, he took a large dose of glauher salts which acted briskly on the bowels, but he did not cease to work in the cold water notwithstanding. The consequences of his imprudence soon became apparent, for the purgative effect of the medicine was scarcely over, when he was attacked with most violent pain in the belly, accompanied by great distention of the stomach and bowels, thirst, headach, and fever. In a few days he was admitted into the Meath hospital, labouring under anasarca, ascites, and intestinal tympanitis. Bleeding, leeching, and the most active antiphlogistic treatment greatly abated his sufferings, and diminished the intensity of the disease, but I fear all our efforts will prove unavailing to procure his final recovery. At the period that the pain and tenderness of the belly, together with the character and frequency of the pulse, demanded the first application of leeches, I was very much surprised to hear from Mr. Knott, a most diligent and intelli-

gent pupil, that the urine contained carbonate of ammonia in considerable abundance. It was examined in Dr. Apjohn's laboratory by Mr. White, and was found to effervesce briskly on the addition of the mineral acids.

This appearance was owing to carbonate of ammonia in great excess. It was of rather a pale straw colour, contained no albumen, and acted on the vegetable colours as an alkali. It deposited a precipitate consisting of the ammoniaco-magnesian phosphate, and phosphate of lime. This remarkable urine was supposed by some who witnessed the violence of its effervescence on the addition of an acid, to owe the formation of its ammoniacal salt to decomposition during its retention in the bladder. But that this was not the source of the carbonate of ammonia, was proved by many circumstances. It was perfectly limpid when voided, and had not the slightest smell of putrescence, such as exhales from urine even in the commencement of decomposition. Again, when our patient completely emptied the bladder of its contents, and in half an hour afterwards again passed a small quantity of water, this latter was found as copiously loaded with carbonate of ammonia as the former. It necessarily follows, therefore, that the urine, as secreted by the kidneys, contained the carbonate of ammonia which seemed to be a vehicle for excreting those elements which are usually combined so as to form urea, *for in this man's urine, not a trace of urea could be discovered.*

The occasional presence of ammonia in the urine, in the form of the ammoniaco-magnesian phosphate, has been long known to chemists; carbonic acid is of much rarer occurrence indeed, for not more than one or two cases have, I believe, been observed, in which carbonate of lime has been found forming a urinary calculus in the human bladder, although so common in swine and other animals.

P. S. July 5. The post mortem examination of this man exhibited the kidneys rather enlarged, and somewhat turgid with blood, the bladder perfectly healthy. The liver misshapen, round

at the edges, smaller than natural, indurated, and composed throughout its whole mass of globular masses, very firm and pale, forming a variety of what is called schirrous liver.

ALBUMINOUS URINE IN DROPSY.

I cannot subscribe to the opinion so warmly advocated by men of distinguished talent both in London and Edinburgh, that an albuminous state of the urine in dropsy depends upon a structural change in the kidneys. I have met with so many cases in which the *albumen entirely disappeared* under proper treatment, that the conclusion seems inevitable, that such a state of the urine may be, and is frequently produced by mere functional derangement of the secreting organ, and not by such a change of structure as is described by Dr. Bright and others. The word functional is used here as distinguished from permanent and evident alteration of structure. It is satisfactory to find that my opinion has the support of both Dr. Elliotson and Dr. Mackintosh. The following is one of several cases which I have treated successfully in a manner not generally practised by others. That great master of pathology and practice, John P. Frank, long ago threw out the hint that some cases of dropsy may be analogous to diabetes. An attentive observation of the different forms under which dropsy presents itself, led me to the following conclusions. When dropsy comes on gradually, is chronic, and unattended by any evidence of being caused by inflammation either of the chest or belly, and where we cannot detect the existence of organic disease either in the thoracic or abdominal cavity, then there is some reason to suspect that the dropsy may be analogous to diabetes. If, in addition to these characters, the urine is found either more copious, or as copious as natural, and especially if it is found to be albuminous, then our suspicions are strengthened, and we are justified in trying the peculiar method of treatment which this variety of dropsy demands, and which consists not in bleeding or leeching, not in purging or exhibiting diuretics, not in mercurializing the sys-

tem, but in the use of opium and animal food in moderate quantity. Of the success of this treatment in such cases, (but in such only,) we have had several striking instances in the Meath Hospital, among the rest the following.

Arthur Noble, a policeman, was admitted on the 16th of May, affected with considerable anasarca of face, trunk and extremities. His disease was of many weeks' standing, and although at its first origin it appeared to have been induced by cold, and to have had an inflammatory character, yet, at the date of his admission, every symptom of inflammation and of fever had disappeared, if we except some tenderness of epigastrium, probably owing more to flatulent distention than to gastritis. Appetite bad, thirst great, urine loaded to an extreme degree with albumen, *skin moist*, constipated, he has some cough and expectoration, depending on slight bronchitis, together with a certain degree of dyspnœa, which may be owing to slight pulmonary œdema. It is to be remarked, that this man's health had been broken for a year and a half, consequently long before the appearance of the dropsical symptoms. Having acted briskly on the bowels on the first day, we gave a powder consisting of one drachm of supertartrate of potash, and one scruple of bark three times daily. This had an excellent effect on the kidneys, increasing the urine, but not in proportion diminishing the quantity of albumen. His skin continued to be moist, and he improved in appearance and strength; but it was observed that he scarcely ever slept more than one hour at night, while the dropsical swellings that had at first rather diminished, became stationary. The latter circumstance, combined with his watchfulness, the complete absence of fever, his great thirst, albuminous urine, and the absence of organic disease, together with the moist state of the skin, determined me to use opium, which was administered at first in the form of enema, but afterwards in that of a pill, containing one grain and a half of opium. Under this plan of treatment his sleep and thirst rapidly returned, his urine diminished in quantity, and became every day less al-

buminous, he rapidly gained strength and flesh, and finally the thirst and swellings disappeared. He left the hospital on the 17th of June, *his urine having for many days been perfectly free from albumen.*

DIABETES INSIPIDUS.

This is so much less frequent than diabetes mellitus, that I have only met three cases in the last four years; the notes of two are subjoined as contributions to the study of this interesting but intractable disease. Unfortunately both patients went from hospital too soon for our observing whether their improvement was permanent, which I think unlikely; although the urine differed so considerably in specific gravity and chemical composition from that of saccharine diabetes, yet did its qualities and quantity become natural, and the general health improve under the use of the remedies found most beneficial in diabetes mellitus, so that whatever distinction may be made between these affections, according to the nature of the urine, they seem nearly identical as to the constitutional symptoms accompanying them, and the mode of treatment to be employed, if I may judge from the three cases referred to.

The infusion of quassia was used in one of the following cases, at the recommendation of my friend Dr. Moriarty, but failed. It is important to observe that although an arid and dry state of the skin generally accompanies diabetes mellitus, yet, this is not invariably the case, as I saw lately exemplified in the case of a gentleman from the county of Carlow, in whom the disease had subsisted for a year, unsuspected by his medical attendant, and in whom the daily amount of urine amounted to about six pints, sp. gr 1051, highly loaded with sugar; it was examined by Mr. Andrews, a student distinguished by great proficiency in chemistry, and the medical sciences in general. During the greater portion of the time the disease had lasted, this gentleman complained of exhausting night perspirations. A similar case I saw under the care of my late la-

mented friend, Dr. Duncan, in 1820. To conclude this short notice, I may remark, that the less severe and chronic form of saccharine diabetes is of much more common occurrence than most practitioners think, and, therefore, not unfrequently escapes detection.

CASE I.—Reported by Mr. Lord, Sir Patrick Dun's Hospital, March 20, 1831. Hugh Cox, æt. 25, labourer, of worn and dejected appearance and intemperate habits. Constitution reduced by venereal and mercurials. About Christmas last, suffered much from cold exposure and low diet; suddenly became very thirsty, and found his urine much increased; at same time lost strength and spirits. Emaciation has been very great; his mouth is dry and parched; tongue white, moist; he wishes to eat, yet takes no pleasure in his food; finds sour drinks most grateful; complains of gnawing at pit of stomach. Bowels generally costive; flatulence; vertigo; sight impaired; gums spongy and ulcerated; great langour; listlessness; inability to make any exertion; loss of venereal inclination; spirits much depressed; weakness and pain across loins; feet often cold; œdema about ancles; skin dry; inability to retain urine; some redness about orifice of urethra; has suffered much from secondary sores, pains in his bones, &c.; has now some sores on his arms, which appear scrofulous; pulse 68, round and soft; he weighs 119 $\frac{3}{4}$ lbs. In twenty-four hours he has passed 11 lbs. of urine; it is of a pale straw colour, extremely limpid and transparent, except that towards the top there is a slight mucous cloud; it is neither acid nor alkaline; the taste is not sweet, but slightly saline and cold, sp. gr. 1008; it contains no albumen, and less urea than natural; in fact, there is a deficiency of all solid parts. The residuum gained by evaporation does not amount to more than two or three parts in 100.

Treatment and subsequent history.—He was put on opii gr. i. four times a day, with animal diet, and allowed four, afterwards six pints of whey to drink. In this form the opium was manifestly injurious. He became affected with costiveness

and headach ; his sleep was disturbed by distressing dreams ; his skin was hot, dry, and extremely itchy,—affections which the use of some warm baths failed to remove. His tongue was foul ; thirst great ; urine not diminished in quantity : and after continuing a fortnight under this treatment, with occasional doses of blue pill, oily injections, and leeches to epigastrium, which the state of his abdomen required ; he was found to have lost in weight $1\frac{1}{4}$ lb. It was therefore determined to change the mode of treatment, and he was put on Pulv. Doveri, gr. x. four times a day, which was soon increased to same dose six times a day.

The first day, in consequence of having drank incautiously after his medicine, it sickened his stomach violently, and he discharged a quantity of yellow bilious-looking matter, after which he fell into a profuse perspiration. The powders were continued ; warm baths added. His skin became relaxed, and often covered with a gentle perspiration ; his tongue clean and moist ; his thirst and urine gradually but steadily diminished ; his digestion improved ; his sleep refreshing, and undisturbed. Vegetables, for which he was anxious, were cautiously added to his diet without any ill effects. He had gained in three weeks 8lbs. in his weight ; his urine was between three and four pints in the twenty-four hours ; increased in specific gravity to nearly that of natural urine ; and he left the hospital improved in every respect.

CASE II.—Reported by Mr. Moore, Meath Hospital, November, 1833. Patrick Kellett, æt. 28, labourer, of intemperate habits, but stout and healthy previously to present attack, lived chiefly on vegetables, but had meat for dinner two or three times a week. Emaciated. Weight, 7st. 12lbs.

Two months ago became dyspeptic, suffering heartburn, flatulence, &c. About three weeks after perceived himself getting gradually very thirsty, particularly at night, and complained of fatigue and perspiration on slight exertion. Appetite very good, but not excessive ; tongue moist, clean ; skin warm, soft ;

pulse 68; bowels confined; pain in loins on exertion; no tenderness along spine.

His urine, of which he passes twelve or fourteen pints per diem, is of a pale straw colour, sp. gr. 1014; not sweet; not albuminous; very deficient in lithates; phosphates rather redundant; sulphates in usual proportion; muriates and urea not below natural quantity; not sweet when concentrated.

November 27th. Passed fourteen pints of urine. 28th. Ten pints.

Habt. Infusi Quassiae lb. i.

December 1st. Seven pints of urine. 2nd. Twelve pints. 3rd. Twelve pints. 4th and 5th. Twelve pints. 6th. Fourteen pints. Perspired copiously last night.

Vapour Bath, with Laudanum.

Pulv. Doveri, gr. v. 2dis horis.

Enema Emoll.

Animal Food, Eggs, &c.

8th. Twelve pints. 9th. Eleven pints.

Habt. Pulv. Doveri, gr. viii. decies in die.

10th. Eleven pints. 11th and 12th. Ten pints. 13th.

Habt. Pulv. Doveri, gr. xii. decies in die.

Vapour Bath, with Laudanum.

Enema Purgans.

14th and 15th. Nine pints. Sp. gr. 1009.

16th.

Habt. Pulv. Doveri, gr. xiv. decies in die.

20th. Makes from eight to nine pints daily; sweats profusely, takes 150 grains of Dover's powder daily; weighs eight stone four pounds, being an increase of six pounds since admission; thirst much diminished; rather purged by Dover's powder.

23rd and 24th. Eight pints.

Habt. Gutt. x. Acidi Nitrici dil. post sing. pulv.

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26th to 30th. Seven pints daily.

31st.

Omitte Medicamenta.

3rd January, 1834. Seven pints. No medicine since 31st.

Habt. Pulv. Doveri, gr. 100, et

Acidi Nitrici Diluti, gutt. 100 quotidie.

6th.

Augeatur Pulvis Doveri ad gr. 150.

12th. Six pints and a half.

13th.

Omitt. Med.

14th and 15th. Six pints. 18th. Five pints and a half.
22nd. Five pints. 27th. Four pints and a half. Urine, sp. gr.
1010; same composition as on admission. Patient's thirst is
much less, and he feels much stronger than on admission; his
weight is now eight stone five pounds.

ART. V.—*Account of a Trial of Acupuncture with Galvanism,
made by Dr. W. Stokes, one of the Physicians to the
Meath Hospital.* By JOHN HAMILTON, L. R. C. S. I.

WITH the expectation that the efficacy of acupuncture would be increased by passing galvanic shocks through the needles, such a combination was tried in France a few years since, and with apparently favourable results. But in this country, although the use of acupuncture is pretty generally known, and its efficacy admitted, I am not aware of any account of its having been tried with galvanism; the following sketch, therefore, of the result of some cases, in which such a trial was made by Dr. Stokes, in the Meath Hospital, will at least possess the merit of novelty.

The galvanic battery employed was a trough, with fifty-two inch zinc and copper plates, and the liquid, sulphuric

acid and water, in various proportions, most commonly three drachms of the acid to eight ounces of the water.

The application was as follows:—If a patient presented himself with paralysis of the deltoid muscle, from rheumatism or other cause, one needle was inserted tolerably deep into the upper fleshy part of the muscle, and a second at the lower part, so that on applying the wires from the ends of the battery to the needles, the shock was passed quite through. Two other needles were occasionally passed at the sides of the muscle. Nine or ten shocks were given at a time, and repeated daily as long as necessary. As the strength of the shock depended on the number of plates used to complete the galvanic circle, that number differed according to the part and the susceptibility of the patient. In sciatica, for instance, where the parts about the seat of the disease are chiefly muscular, the shock from the whole fifty was sometimes passed along the limb. The employment of so great a number, however, was rare, from the violence of the shock being far too great, and anything near that number, where the galvanic fluid had to pass through a delicate or important organ, such as the brain or eye, never used. The necessity of caution in this last respect is well shown in the following case:—A man, formerly a soldier in India, with some obscure chronic disease of the brain, which rendered both eyes amaurotic, was ordered to be subjected to this agent; more from a wish to give him every chance where all the usual remedies had been tried in vain, than with much hope of success. The left eye being the worst, one needle was inserted a little above the left eyebrow, another at the lower part of the occiput at the same side. It had been determined to commence with only eight or nine pair of plates, but from a feeling of caution, the circle of communication only included three pair. And yet, with this exceedingly small number, he was completely stunned for an instant, as if from the blow of a heavy stick, and felt a severe darting pain through the head, with a flash of light before the eyes. Now, where so severe a shock resulted from

so few plates, and as we know the severity is proportioned to the number, it does not appear unreasonable to suppose, that, had the number commenced with been twenty-five, which would have given a shock upwards of eight times as strong, some severe lesion of the brain, or even death itself, might have been the result. In all subsequent cases of amaurosis, to prevent the likelihood of any injury to the brain, the place of insertion of the needles was altered, and consequently, the course of the galvanic fluid.

The extent to which the impression of galvanism on the system is increased by the aid of needles, and how much can be done by a small battery, is very remarkable. On merely applying the ends of the wires to the skin, no effect is produced, the galvanic fluid appears diffused over the surface and lost; but the instant they touch the needles inserted into a part, a most violent shock is given, making the stoutest cry out from pain, powerfully convulsing the muscles, generally throwing the patient into a profuse sweat, and often followed by faintness and sickness of the stomach. Some, from its severity, would not submit to a second operation. In a case of amaurosis one needle was inserted into the nasal end of the eyebrow, the others into the temple, by which means the shock passed in a great measure through the orbit, engaging the brain only to a slight degree. The patient was sensible of a disagreeable stunning feel in the forehead, with pain, the brows were reddened and contracted, a flow of tears came from the eye, with the sensation of a flash of light; and in one person in whom it was used by the late Mr. Hewson, going as high as twenty-five pair of plates, the pupils were observed to be very much contracted after its use, and a stinging pain felt in the head the rest of the day. In another case also, where the application was to the side of the face for paralysis of the portio dura of the seventh nerve, rigors, with headach, and heat and prickling in the part, followed several times.

This great increase of power from the use of the needles

evidently depends on their conducting the galvanic fluid beneath the cuticle, the well known property of which is to resist its admission. They accomplish what Humboldt effected by removing the cuticle by blisters, but in a much simpler, more expeditious, and convenient manner; giving scarcely any pain, if rightly introduced, and leaving no lesion behind them. The following circumstance attending their extraction is curious. In simple acupuncture all the needles inserted are generally withdrawn with some degree of difficulty; this difficulty was always found to be greatly increased after the application of galvanism in one of the needles, while the other was exactly the reverse, being invariably withdrawn with unusual facility, greater even than the natural consistence of the flesh would seem to permit. Some idea may be formed of the degree of resistance occasionally met with in the extraction of one of the needles, when I mention, that one gentleman found it so great, that after exerting much force in vain, the needle still sticking tightly in the lumbar muscles, he expressed his conviction that it must by some means have got bent, and thus hooked in.

The needle difficult of extraction was always that to which the positive wire had been applied, the other, that touched by the wire from the copper or negative end of the battery.

This phenomenon appears to depend on the power which the positive end of the battery is known to possess of giving irritability, and that of the negative in taking it away. "If silver be applied to nerves and zinc to muscles, the irritability of the latter increases in proportion to the time they have remained in the chain. By this method the thighs of frogs have been revived in some degree, and afterwards become sensible to stimuli, that before had ceased to act on them. By distributing the metals in an inverse manner, applying zinc to nerves and silver to muscles, an effect absolutely the contrary is observed, and the muscles that possessed the most lively irritability, when placed in the chain, seem to be rendered en-

tirely paralytic." Applying these principles to the facts before us, we can readily conceive how the muscular fibres round the positive needle, endued with a tenfold degree of irritability, tightly grasp the needle, and resist its removal, while the exhausted and paralysed fibres round the negative needle yield it up to the slightest force.

Wishing to see how far these effects extended, I inserted the needles, scarcely a quarter of an inch apart, but still found the positive needle hard, the negative easy to extract. On changing the application of the wires, so that each needle was touched by both, both needles were equally resisting.

Between the needles there was generally a red blush, and the shock extended no farther ; in one instance, however, where one needle was inserted on the outside, the second on the inside of the right ankle, a strong convulsive twitch was excited, extending up the leg and thigh, and slightly convulsing the right arm and temporal muscle, accompanied by pain in the same direction.

As a remedial agent, I regret to say, the cases in which this combination of acupuncture with galvanism has been tried leave little to be said in its favour. Even were its efficacy greater, the application is so severe as to preclude its use, except in cases of a hopeless character, and where milder means had been resorted to in vain. It was tried in the manner described above in numerous cases of chronic rheumatism, several of sciatica and lumbago, a few of amaurosis, and some of paralysis, two of which were from lead. A case of lumbago and paralysis from lead were certainly cured, after many other remedies had been tried in vain, and a case of rheumatism greatly relieved ; the most striking instance, however, was a case of paralysis of the portio dura of the seventh nerve, which I think well worthy of giving at length, as presenting a very accurate picture of this very interesting and rather rare form of disease, as well as a full exemplification of Sir Charles Bell's views on this subject. It

was taken by my friend Mr. Ellison of Liverpool, who applied the galvanic shocks himself.*

Case of Paralysis of the Portio Dura of the Seventh Nerve.

Thomas Hogan, a bricklayer, ætat. 56, admitted on the 18th December, 1833, with remarkable distortion of the right side of the face: the cheeks being loose and pendulous, and the mouth dragged over to the left side. He states that he had been ill three weeks, and although of rather intemperate habits, had previously good health. Being employed in repairing a chimney, was exposed for several hours to a cold and piercing wind; felt considerable pain in the face at the time, but thought a glass of whiskey would cure it. In the evening, however, the pain increased, and he was attacked with pain in the head, giddiness on stooping, nausea, thirst, and loss of appetite: these symptoms were followed by erysipelas of the face, chiefly affecting the right side; relief followed bleeding and saline aperients. A fortnight ago, one of his friends noticed that his face was a little 'awry,' but he was quite unconscious of the deformity himself, till he looked in a glass. The deformity gradually increased, notwithstanding the most active treatment, and he presented himself at the hospital in the following state: The features on the right side of the face are blank, unmeaning, and motionless, the left retains its natural cast, excepting that the lines on that side are more strongly marked, and the angle of the mouth appears somewhat drawn upwards and to the left side. The skin upon the forehead on the right side is smooth, and presents no wrinkles, while the left is deeply furrowed. When he attempts to raise his eyebrows, the right one remains unmoved, but the left is drawn upwards, and the integuments covering the forehead on that side much

* This gentleman had the unusual distinction of obtaining Dr. Graves' and Stokes' first clinical prize, and Dr. Stokes' stethoscopic prize, the same year, at the Meath Hospital.

wrinkled. The eyelids of the right eye usually remain half closed, without the power of approximating the upper and lower lids. He can *raise* the upper lid by the action of the levator palpebræ, on relaxing which the lid returns to its semiclosed state. When an effort is made to close the lids, the eyeball rolls directly upwards, and carries the transparent cornea within the curtain of the upper lid. The lower lid is slightly everted, partially exposing the conjunctiva, and favouring the escape of the tears down the cheek. The superficial muscles of the right side of the face are flaccid, and when he speaks the cheek on that side is alternately puffed out, and then collapsed like a loose curtain. This is very remarkable when the patient coughs or pronounces most of the labial consonants. When blowing, the cheek is distended like a bag, the air at the same time escaping at the angle of the mouth. The same thing occurs with fluids, he cannot prevent their escaping at the right corner of mouth. On requesting him to draw the right angle of the mouth towards the right ear, there was not the slightest motion perceptible, excepting from the action of the muscles on the opposite side. Mastication not very perfectly performed on this side, owing to the morsel getting between the teeth and cheek, from whence he is obliged to dislodge it with his fingers. Complains of some stiffness in his jaws, and that he is not able to open his mouth wider than will admit a tea-spoon. In the space between the mastoid process and the ascending ramus of the jaw some degree of pain and tenderness was discovered, which was much increased on passing the fingers into the concha of the ear, and pressing downwards and forwards. Neither tumour nor swelling, however, could be detected in this situation. He can press hard substances as firmly between the teeth on one side as on the other; the temporal, pterygoid, and masseter muscles acting equally well on either side. The symphysis of the jaw can be directed to either side, but more perfectly to the left. There is some thickness of speech, but this is removed by supporting the paralyzed cheek with the hand, the patient

then being able to speak distinctly. There is no deafness nor alteration in taste, and sensation of the paralyzed parts is perfect. General health good ; pulse 60, regular ; bowels rather costive.

By Dr. Graves he was frequently leeches, cupped, blistered, and purged, without effect. Croton oil frictions, moxas, putting him under the influence of mercury, only gave slight and temporary relief ; the report on the 5th of February, about six weeks after admission, being as follows : “ excepting a very slight degree of motion in the occipito-frontalis muscle, he remains nearly in the same state as when he entered hospital. General health good, no pain or giddiness in the head ; pulse regular ; bowels free ; appetite good.”

Strychnine, $\frac{1}{12}$ of a grain four times a day was administered with considerable effect, and the excitement of much spasmodic twitching in various parts of the body, but particularly in the paralyzed part. After about twelve days' exhibition of this medicine, these effects became so powerful, along with pain and giddiness of the head, that its omission became necessary ; and on a second trial, a few days after, it was finally given up ; the disease remaining nearly in the same state as on admission.

March 5th. Dr. Stokes now determined on having this patient galvanized. He introduced two needles, one over the trunk of the portio dura nerve, the other near the ala nasi, in a line with the temporo-facial branch of the seventh nerve. The positive pole of the battery was applied to the latter, the negative to the former. The patient received eight shocks, and says that at each shock he felt as if he had received a smart blow on the cheek from a stick or a cane. On withdrawing the needles, the negative one came out with ease, but the positive required some degree of force to extract it. It was persevered in daily (with the exception of one day in consequence of headach) with manifest improvement.

March 15th. Two hours after the application of the galvanism yesterday, he was attacked with violent pain in the head

and a rigor, which lasted for nearly an hour and a half, then subsiding and leaving him as usual.

20th. Same sort of rigor.

21st. The rigor came on almost before the withdrawal of the needles, and lasted several hours, accompanied by headach, and heat and tingling in the affected cheek.

24th. Left hospital; little or no deformity can be noticed when the features are at rest; the forehead nearly as much wrinkled on the right as left side; voice not at all affected; mastication as well performed as on opposite side; in short, the only remains of the paralysis are in a slight difficulty in closing the eyelids, and the right not acting simultaneously with the left. Although, therefore, with the exceptions just named, much value cannot be attached to acupuncture with galvanism as a means of cure, there are occasions in which it appears reasonable to think it might be used with considerable benefit, as one of the most powerful excitants we possess; such, for instance, as cases of suspended animation, from drowning, or asphyxia from many causes, catalepsy, &c.; and, as a powerful stimulus in cases of poisoning by opium. The needles, if necessary, could be inserted in such a manner as to act on the muscles of respiration, without any preparatory dissection, and a very small battery, it is evident, would through them act most powerfully.

The end of these trials, that of ascertaining the value of the remedy, has at least been attained by Dr. Stokes, though contrary to what might have been wished; and next to the merit of having added a new power to our present means of combating disease, may surely be placed that of having reduced a pretended remedy to its proper level.

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On the Certainty and Safety with which the Operation for the Extraction of a Cataract from the Human Eye may be performed, and on the Means by which it may be accomplished. By G. J. GUTHRIE, F. R. S., Surgeon to the Westminster Hospital, to the Royal Westminster Ophthalmic Hospital, Deputy Inspector General of Army Hospitals during the War, Lecturer on Surgery, &c. &c. &c.

CERTAIN as every work must be which proceeds from the honest and talented pen of Mr. Guthrie, of being received with respect and read with attention and advantage, still, it must be confessed, the present essay is peculiarly deserving of notice; a pamphlet in size, it contains as much practical information as is often found in a laboured volume, and will, we may venture to say, amply repay any person for the trouble of its perusal. Being written in an almost aphoristic style, it becomes a matter of difficulty, if not of impossibility, to cull from its pages detached portions, without leaving unnoticed remarks as full of information, of caution, and of advice, as those which would be selected; still we cannot refrain from introducing the work to the notice of the readers of the Journal, if it be only for the purpose of drawing their attention to a publication in which they will find much worthy of praise and remembrance.

Our author commences his observations by the well known remark, that a man must spoil a hat-full of eyes before he can learn to extract a cataract; of this statement, at the time it was first made, he acknowledges the truth, but believes it depended, in a great measure, upon the directions given at that period for the performance of the operation. Operative surgery has, however, improved much since then, both in its theory and practice, and, perhaps, in no department more than the oculistic; it cannot then be a matter of surprise if we excel our forefathers in the dexterity, and we may say, safety of our operations, and consequently in the number of successful cases.

After expressing a wish that his contemporaries would follow

his example, and give the world the benefit of their knowledge and experience, Mr. Guthrie proceeds to state that the operation of extraction ought only to be performed in cases of hard cataract, and states it as his opinion, that it is impossible to suppose that a truly hard cataract is any thing else but what it seems to be, and really is. Such, no doubt, is his conviction, but it requires both his tact and experience to practically prove it. The symptoms which we would expect to perceive, when the eye is sound, and the lens perfectly hard, are "the cornea pellucid, the iris plain and healthy in colour, and the pupil regular in its motions and appearance; the lens is of a grey or amber colour, verging to yellow, or a brown walnut hue, and is said to be sometimes black." The diagnosis between amaurosis and cataract, for which it might be mistaken when the lens is of a dark or black colour, may be found in the "lively motions of the iris, the absence of the natural brilliancy of the black colour of the pupil, and the fact of the figure of the person examining the eye not being reflected in it;" to this may be added the history of the case, and if, in addition, we have by belladonna procured a dilatation of the pupil, the true disease will in all probability be distinctly evident.

After a few further remarks, the preparations necessary for the operation of extraction are considered, and such rules laid down as would appear necessary previous to any operation of importance. Abstinence, bleeding, moderate purging, cupping, &c., as the particular case may indicate, are all considered, and the useful hint given, that when the operation is to be performed on nervous persons, care must be taken to prevent any undue depression of strength or spirits.

The disputed question, whether both eyes should be operated on at the same time, is answered by our author in the affirmative.—1st. Because he considers success as almost certain, and then only one after-treatment will be necessary.—2nd. If any accident should occur, and that a vigorous or protracted after-treatment be necessary, the patient may not, and, if an elderly or debilitated person, ought not to be induced to a second operation: and—3rd. If that second operation should be unfortunate, and should also require vigorous after-treatment, loss of health, or perhaps of life, may be the consequence. This, however, more particularly applies to elderly persons, and the operator is recommended to leave the matter to the election of his patient, having previously explained the reasons for and against, and if one eye be worse than the other, preferring that for the first, if two operations be decided upon.

The general preliminary directions, with regard to the relative position of patients and surgeon, the quantity and descrip-

tion of light most desirable, and the tact necessary in opening and fixing the eye, and such matters are clearly and satisfactorily pointed out, and are followed by some interesting remarks with regard to the sensibility of the eye, which we will give in the words of the author :

“ The eye being opened and the eyelids retained asunder, the organ loses all the extreme sensibility with which it is endowed for its security and preservation in its ordinary state. Public opinion, which, on medical subjects, is generally erroneous, although for the most part founded on professional authority, is in no instance more injurious than in relation to the eye. It pronounces it to be an organ of a very delicate nature, exquisitely sensible, requiring the greatest delicacy of touch, and the utmost nicety of management ; which opinion some oculists formerly found it convenient to support, and which the public may still believe without any great disadvantage ; but students in surgery must be taught otherwise. They must learn that the eye is not a delicate organ, that it will suffer more comparative violence with less injury than any other of importance in the whole body ; that, so far from being exquisitely sensible, it is, when exposed in a healthy state, nearly the reverse, only becoming permanently so on the occurrence of inflammation ; and that the ablest and most successful operators are not apparently, although they are in reality, the most tender in their proceedings. The opinion of the exquisite sensibility of the eye has arisen from the pain which is felt on the admission of a small piece of dirt or a fly between the eyelids ; but this occurs from a wise and preservative provision of nature on account of the insensibility of the eyeball itself. Let the eyelid be raised, and the same piece of dirt applied to the surface of the eye, no pain, and scarcely a sensation will be produced : remove the piece of dirt, turn out the lid, and whilst it is retained everted, place the piece of dirt upon it, no greater sensation will be induced than is felt when it is applied to the eyeball. The inference is that both surfaces, when touched separately, are nearly insensible to this species of irritation. But let the same piece of dirt be put between the eyelid and the eyeball, and the sensation produced is exquisitely painful. To give rise to this sensation it is necessary that the two surfaces should come in contact, and that the foreign body be grasped between them. If this were not the case, an irreparable injury would often occur to the transparent part of the eye, before it would be observed ; and if the raising of the lid and the separation of the surfaces did not nearly annul sensation an operation could not be performed for cataract ; for who could bear quietly the sensation which must arise from pushing a needle into the eye, if it were analogous to that arising from a fly or a dry solid substance between the eye and the lids ? The experiment may be tried in a very simple and conclusive manner by any one on himself, by merely keeping the lids apart by an effort of the will, when the end of the finger may be placed boldly on the eyeball

without any inconvenience. Inflammation, by enlarging the vessels, gives rise to pain in the same way, and the sensation is at first as if some extraneous matter were interposed between the lids."

Having given the useful hint, that in cases where the patient is irritable or nervous, we should separate the lids, and fix the eyes two or three times previous to the operation, at intervals of a day or two, and also touch the eye with a probe to remove unnecessary alarm, the advantages of the operator fixing the eye, and in fact performing the entire operation without assistance, are considered and strongly advocated. The knife recommended is one spear-pointed, blunt on the back and rather narrow, bearing the very best possible edge and point, and should not be used until previously tried by being passed through a piece of leather of a proper thickness. With regard to the disputed point, whether the pupil should or should not be dilated by the use of belladonna, we have the decided opinion of our author on the positive side of the question, more particularly where the operator is young; as by dilating the pupil he is relieved from much embarrassment, so far as the iris is concerned. The mode of entering the knife differs a good deal from that usually recommended, for in place of passing it perpendicular to the iris, and quickly turning the handle towards the temple, as soon as the cornea is penetrated, we are advised to introduce it parallel to the surface of the iris, by which means many evils will be avoided, especially if the operator be young or inexperienced. The directions for passing the knife across the anterior chamber, for guarding against the involuntary motions of the eye, and for carrying the instrument through the cornea; his remarks upon the greater density of the inner layer of the cornea, or as it is sometimes called, the membrane of the aqueous humour, and its influence on the performance of the operation, are given with the author's usual ability and precision. The point next under consideration is the mode of acting when, by a premature escape of the aqueous humour, the iris bulges forward on the knife or perhaps overlaps it. Here we must let Mr. Guthrie speak for himself, as the matter is one of very considerable importance.

"The directions given in such a case by the Baron de Wengel, and which the late Mr. Ware said, were the most important in his whole book, are that the cornea must be gently rubbed with the point of the fore finger, which causes a contraction of the pupil and consequent drawing back of the iris, when the surgeon must complete the operation; but if the iris again fall forward before this is accomplished, he must keep the finger on the cornea until it is effected, by which all danger of the iris suddenly protruding will be

avoided. It is also recommended, that the surgeon should wait a little and allow the spasm to subside; and he may wait and rub, and wait again, and then rub again if he pleases, but he will rarely succeed unless he does something more, and that is to raise the eye, or in other words, to draw it as it were out from the orbit, whilst at the same time, he presses the cornea flat against the blade of the knife: this is the other and the best half of the secret, and without he does which, he will not succeed in disentangling the iris. A little consideration will, I think, show why it can only be done in this manner. When the aqueous humour has escaped, the cornea becomes flaccid, and the remaining humours of the eye advance or are brought forward by the action of the recti muscles, so as to press the iris against it; if the knife is between the iris and the cornea, it keeps these parts asunder as far as its width extends, but not further, and as it raises the cornea in every part, it would make a vacuum below its edge between these parts, if the former did not rise up to fill the space, or if the air did not rush in to do it. This effect of the air is, however, counteracted by the muscles acting in the eye with greater power, and the consequence is, that the iris is forced upwards into the vacant space, and the air, if any has entered, is expelled. The iris can, however, be only elevated or protruded to a certain extent, in consequence of its circular attachment, and of its disposition to contract towards its pupillary edge or centre. When the cornea is well raised, so as in some degree to raise the eye along with it, while at the same time the cornea is pressed against the blade, the iris slides from between them, and the operation may be completed in a highly successful manner. There is now another secret to be disclosed of yet greater importance to the young operator, it is that the effect of an injury to the iris is very greatly overrated, and that if the operation cannot be completed without injuring it, the injury must be committed. The real truth is, that *no good operators* in this great city of London do otherwise. When the iris bulges over the edge of the knife, it is often not possible to get it quite clear by any effort, exertion, or dexterity, on the part of the operator. If any man says otherwise, I do not hesitate to say that he is in error, and that his own operations, if he has ever done any, will show it. This being the case, the operator has only a choice of evils, to proceed, under any circumstances, or to abandon the operation. This I have done, and the consequence was, that as much inflammation followed, as if the operation had been duly performed; and the eye was not upon the whole in a very favourable state for a future operation, the iris being usually a little injured, and the consequent inflammation rendering the pupil less regular and dilatable, than it ought to be. If, on the contrary, the operation is completed, the iris is slightly shaved, as the knife advances, or a piece may even be cut out, but the patient will, nevertheless, have a very good eye. The cut in the iris will often not be discernible, unless the upper eyelid is raised to look for it, and he will see remarkably well after a very speedy recovery. In fine, I may say, the operation is always done in this manner by all

those who know what they are about ; and the eyes of persons of all ranks, who have been operated upon, either in London or on the Continent, prove it."

Having made some remarks on the knives invented by Jager of Vienna, and Graefe of Berlin, and a double one of his own suggestion, he proceeds to speak of the laceration of the capsule of the lens, (if that body has not been forced out by the action of the muscles), and we are strongly recommended for that purpose a hook, the point of which is placed at right angles with the shaft, taking care also that during this part of the operation a bright light is not allowed to fall on the eye, for if it is so, the pupil will contract and offer no small impediment to its easy performance. The capsule being sufficiently opened, and the cornea divided to the proper extent, namely, nine sixteenths, or a little more than one half, of its whole circumference, the iris will, in general, be seen to rise from its situation, its upper edge gradually passing through the pupil and sliding over the iris. Should it be necessary, we may assist its progress, by the hook or curette, and on its expulsion the lid should be permitted to fall. Pressure upon the under part of the eye, although occasionally necessary, we are wisely recommended if possible to avoid, inasmuch as it is often injurious by causing a sudden, instead of a gradual, expulsion of the lens, and with it, in all possibility, a discharge of the vitreous humour. Inflammation always follows the discharge of a lens, which is accomplished by force. Should a portion of the vitreous humour push forward (between the iris and lens) nothing can prevent its being protruded and expelled, but it is a matter of comfort, that while we cannot guard against the accident, its occurrence is of little importance, as in many instances a large portion of the vitreous humour has been lost without much injury, and in one remarkable case, the entire was forced out, and still the patient recovered with a very fair degree of sight ; an irregularity of the pupil is, in fact, generally the principal inconvenience. A matter of greater moment is the sinking of the lens towards the bottom of the eye, in consequence of its losing the support of the vitreous humour. If the surgeon hesitates, and does not steadily introduce his instrument and hook the lens, it will sink, and the eye will be lost from inflammation. When a portion of the vitreous humour insinuates itself between the cut edges of the cornea, thereby preventing their early reunion, and by allowing the newly secreted aqueous humour to escape, drawing the iris into the line of the incision, when it adheres we are to endeavour to remove it by the curette, and by very gently rubbing the eyelid (which we have allowed to fall) with a soft wet sponge for two or three minutes ; the latter

proceeding will also generally bring back the iris to its usual situation, when it is drawn from it by the cause we just stated. If our efforts fail, the pupil may be more or less irregular; the aqueous humour, and consequently, the anterior part of the eye will suffer both in shape and appearance; but if the patients recover their sight, it is not a matter of very great regret to them, though one which the surgeon should certainly wish to avoid. Having carefully placed the cut edges of the cornea in apposition, adhesion takes place in general rapidly, behind them the aqueous humour is retained according as it is secreted, and in thirty-six or forty hours the eye has acquired much of its original plumpness. Should the vitreous humour be pushed forward by the action of the muscles, a fact which will be ascertained by the eye not appearing flat, when the flap of the cornea is adjusted, it is to be pressed back to its place by gentle friction on the eyelid, but if it will not yield to this treatment, we will be compelled to introduce the hook through the pupil, and puncture the membrane of the vitreous humours so as to allow of the evacuation of a fourth or fifth part of its contents, when the eye flattens, and the cut edges of the cornea can be brought into apposition. The operation is now completed, and the usual directions for after treatment are given with some useful additional hints. We are not to raise the upper lid under *any circumstance* sooner than the third or fourth day, and not for a week if we had experienced unusual difficulty in the performance of the operation, or have reason to expect a tedious union, the lower eyelid may, however, be depressed to enable the surgeon "to see the state of the ball of the eye, and to prevent the accumulation of fluids in it." For information as to the presence or absence of inflammation in the eye during this period, we are directed to the state of the upper eyelid, where appearance is unaltered if all goes on well, but which swells in general in proportion to the extent of the inflammation within, which must be treated accordingly. The eyelids being closed, thin compresses applied, the room darkened, and the patient put to bed, we are advised, as a general rule, to take from twelve to sixteen ounces of blood as a preventative. The eye is to be occasionally fomented with a warm decoction of poppies. Purgatives, if necessary, may be exhibited, but care is to be taken to avoid sickness of stomach, as the effect of vomiting might be to derange the apposition of the edges of the incision. It should also be remembered, that the sooner we can exchange, with safety, the bandage for a green shade, the better, and that light is to be admitted gradually, and in the proportion found most agreeable to the patient.

R. L. N.

The Principles and Practice of Obstetrics, as at present taught by James Blundell, M. D., Professor of Obstetrics at Guy's Hospital, to which are added Notes and Illustrations. By THOMAS CASTLE, M. D., F. L. S., Member of Trinity College, Cambridge, &c. &c. London, pp. 838. E. Cox, 1834.

“ΠΟΣ. Τις δὲ ὁ ταυτα τολμησας ὦ Πολυφῆμε.
ΚΥΚ. Οὐτιν εαυτον ἀπεχάλει.”

LUCIAN'S DIALOGUES.

WE little anticipated, when, in our school-boy days, the difficulty of correctly translating the witty writer from whom we have selected our motto, was often more than compensated for by the amusement afforded by his pleasantry, that it should one day be our lot to encounter a portly volume of professional doctrines, standing as nearly as possible in the predicament implied by the words of the poor blinded cyclops, Polyphemus. Yet, such we conceive to be the situation, with regard to literary identity, in which the volume before us is unhappily placed.

The editor informs us in the preface, that the volume is compounded of selections from the text of the *Lancet* report of Dr. Blundell's lectures, to a certain extent, the subjects being re-arranged and sub-divided by Dr. Castle, and such fresh matter added as his own notes could supply, and so

“Hæc est nostri farrago libelli.”

Now, from this statement it is at once to be collected, that the book is avowedly a jumble of Dr. Blundell's lectures and Dr. Castle's “fresh matter,” and how is the reader to discover which is which. We beg to say that we appreciate very fully Dr. Blundell's abilities both as a teacher and a practitioner, but we cannot but smile at the absurdity of the editor's grandiloquent assertion in his preface, that “his *name alone* is sufficient to give importance and authority to *any* publication.” Although his only share in its authorship should be “correcting some of the sheets as they were proceeding through the press,” yet, it is evidently intended that this book should pass with the public as the production of Dr. Blundell, and a faithful transcript of his lectures, which it is not, nor are the additions the work of the editor either, as we shall presently shew; observing for the present that it is a source of regret to us, and, we are sure, will be so to the public also, that Dr. Blundell did not edit his own book; had he done so, he would have freed it from many imperfections which could not have escaped correction under his hands, and he

would have invested it with a degree of authority, or at least authenticity, which, under existing circumstances, most assuredly it will never acquire ; but if this could not be accomplished, it certainly would have been very satisfactory had Dr. Castle stated his qualifications for acting as editorial godfather to so important a work ; they may be of the very first order, and we do not doubt that they are, but they certainly are not to be recognized in his being merely "Member of Trinity College, Cambridge, F. L. S., &c. &c.," such titles not implying any particular proficiency in the study or practice of midwifery, and as a matter of fact, we find, on reference to the notes appended by the editor, that those of any practical importance are not his own, but quotations from various authors. The work is divided into five sections, the first of which contains the "Anatomy of the Female System," many parts of which are given very carelessly, and without that precision which they ought to have claimed ; as for instance, the situation of the meatus urinarius, which is said to be between the nymphæ, (p. 29,) whereas in reality it lies considerably posterior to these parts ; and the necessity for adroitness in the introduction of the catheter renders it particularly desirable that the young practitioner should have a very precise notion of the exact situation of this orifice. We may also observe here, that having sought diligently through this book, we have been unable to find any directions to the student for the performance of this operation, so frequently embarrassing to the beginner : this is a grievous omission.

In page 38 we find this passage :

"The ovarium is covered with the peritoneum ; but when the ovum is impregnated and becomes prominent, the peritoneum which covers it is absorbed, the ovum passes into the fallopian tube, and the little scar or altered texture which remains on the surface of the ovarium, is called the *corpus luteum*, on account of its yellow colour."

On this we have to observe, first, that we feel quite certain Dr. Blundell was not accessory to the appropriation of such an absurd description of the corpus luteum ; secondly, that whoever was, could have known nothing of the matter ; and thirdly, that the whole passage, as well as many others, is copied verbatim and literatim from Mr. Burns, although the note of reference is so placed, as to lead the reader to suppose that author referred to, merely as a collateral authority for one part of the statement.

In other places we have whole pages transcribed from Denman, to which as the production of such distinguished writers we are very far from objecting, but we do most strongly

object to the principle of putting forth a large and expensive book as the original lectures of so talented a teacher as Dr. Blundell, which on examination is found to be a sort of literary olla podrida of bits and scraps, injudiciously hashed up together, and composed, in very many instances, of articles of a very inferior quality.

The second section treats of "the Physiology of the Female System," and it is but justice to say that it contains much that is interesting and instructive, much that reflects high credit on the ingenuity and perseverance of the investigator; but at the same time, much that requires improvement. The account of the decidua, and especially the reflexa, is miserably meagre: the same might be said of the remarks on the vesicula umbilicalis: and we feel particularly surprised at the adoption of the theory which asserts the existence of cells in the placenta, and the passage into them of large arteries and veins from the uterus. The existence of lymphatics in the placenta and cord is denied; but Fohman has very recently published, in *Treviranus' Journal*, an account of his researches on this subject, from which it appears that he succeeded completely in injecting them, and he gives a beautifully executed plate of their appearance: still more recently they have been injected by Dr. Montgomery of this city. Appended to page 124 we have a note, *auctore nemine*, in which we are told that a "fœtus may arrive at maturity, although it has no connexion with the mother, and consequently, no connexion with the placenta," and for the case in proof we are referred to the *Glasgow Medical Journal*, 1828. We thought it but fair to refer as directed, but having done so carefully we could find there no such case; and if we had, it would only have doubled our amazement to find two instead of one, who could either write or believe so monstrous a paradox, to give it no harsher name.

Under the head of anomalous impregnation we have a very curious display of that sort of perverted ingenuity, which, by wresting facts from their natural import, and making them the basis of a theory, deduces conclusions, which such facts by no means warrant or supply; for our author, by assuming that monstrosity by inclusion is a species of irregular or anomalous impregnation, (which it most assuredly is not,) arrives at this very startling inference that, "it is not physiologically impossible that a woman, though a virgin, should be with-child," p. 67; and again, "that virginity is not of necessity lost by the individual who conceives," p. 68. If to these we add the proposition, for which we suppose we are indebted to the editor as before noticed, that a fœtus may arrive at maturity without any connexion with the mother; we are furnished with a very new view

of the subject of reproduction and maternity; for thus we find that a young lady may, without forfeiting her virginity, conceive and become pregnant, and if she can only contrive to deposit the foetus quietly in her reticule, it may there be equally well developed, and arrive at maturity without any connexion with her system; so that she may altogether outdo the kangaroo with her marsupium; and after all be a pure virgin. Such discoveries are really very refreshing: we cannot tell how the authors of this compound theory would like such virgins, (compared with whom Diana was a vestal;) but for our parts we can assure them they would not be at all relished on this side of the channel. If such absurdities were a little less monstrous they might be dangerous, in their present form they can only afford food for laughter. But it just occurs to us, that perhaps all this time we have not been doing justice to our author, who may have been merely indulging an ebullition of classical enthusiasm, an attempt to restore or modernize some of the glowing allegories of the ancient mythology, in which we find Jupiter with his brain pregnant of Minerva, in consequence of his having swallowed her mother.* On the occasion of his delivery, Dr. Vulcan was the attending accoucheur, and it appears found it necessary to perform craniotomy; the perforator, however, was applied to the head of the parent instead of the offspring. Or, perhaps, a fact still more germane to our subject would be found in the conception of Juno, when she became pregnant merely from having eaten some lettuces at the table of Dan Apollo, and brought forth Mars; or, as some will have it, Hebe was the result of the sallad.†

Section 3rd treats of "the signs and diseases of pregnancy," a subject which we expected would have been handled in a very masterly manner, but we regret that we were totally disappointed in our expectations; many of the subjects touched on are treated in the most hurried and superficial manner. Quickening is despatched in a few words, and its various anomalies

* According to the best authorities, Jupiter married Metis, one of the Oceanides, whose superior prudence and sagacity above the rest of the gods, made him apprehensive that the children of such an union would be of a more exalted nature, and more intelligent than their father. To prevent this, Jupiter devoured her in the first month of her pregnancy, and some time after being seized with severe parturient pains in his head, he ordered Vulcan to cleave it open; which being done, Minerva was born all armed and grown up, and was immediately admitted into the assembly of the gods.—Vide Hesiod. Theog. v. 890, and Apollodorus, i. c. 3.

† Hence probably the still prevailing notion among children, and others uninformed on such subjects, that little children are found in the parsley-bed.

and exceptions omitted altogether, nor is any information afforded as to the more general period of its occurrence; the enlargement of the abdomen is discussed in a page and a few lines; the description of the areolar sign is very imperfect and very faulty, since it assumes the colour of the part to be the essential character from which we are to form our opinion; the application of auscultation is not treated of in the text at all, and the only notice it receives is in a jumble of contradictory notes appended to p. 156, the intention of which is evidently to throw discredit on this mode of investigation; the opinion of Mr. Waller being set up in opposition to that of Laennec and Kergaradec, and Velpeau is asserted to have "tried it in a great number of cases in vain;" but, on reference to the original, it will be found that Velpeau says nothing of the kind himself, but in speaking of the placentary murmur he observes, "I have sought for it in vain in a good many persons, but on the contrary I have heard it very plainly in a great many others."* We cannot avoid remarking that the selection of these notes evinces a complete want of acquaintance with the subject, and of fidelity in their transcription, else whence came the words "suspected value of auscultation." The section commences with a very satisfactory piece of information, the introduction of which we feel rather at a loss to account for, "the most certain mode of knowing whether a woman be in a state of gestation or not, is by waiting till the term of nine months is completed," p. 153. Indeed: well that never would have struck us as one of the first means to be mentioned for investigating the existence of pregnancy. Subsequently we are favoured with a mysterious allusion to some secret not to be divulged: "should all these signs prove indecisive, there is still one other which can rarely fail us; but I deem it better not to mention it," p. 172. We are ready to confess that we feel utterly at a loss as to what is meant by this; but this we may observe, if it alludes to any proper mode of investigation, it ought to have been fully explained, and if it does not, it should not have been introduced at all. The diseases of pregnancy are satisfactorily and ably treated of, but it strikes us as a remarkable omission, that retroversion of the uterus is not included amongst them, nor treated of in any other part of the book: this is quite unpardonable.

The 4th section treats of "the art of delivery," and contains on the whole much valuable practical information; were we to select one part as better than another, we think we should prefer the sections which treat of the different forms of hæmor-

* *Traité Elem. de l'Art d'Accouchim.* tom. i. p. 190.

rhage during labour, and such summaries as those given in pp. 245, 259, et seq. 456, and elsewhere, are calculated to be of much use to the young practitioner. Too much praise cannot be given to the frequent and impressive warnings against haste and violence; which are so constantly in practice mistaken for decision and energy, while the unhappy patient pays the penalty of the mistake: "quicquid delirant reges plectuntur Achivi." We perfectly agree in the truth of the remark, that "the thrust of a hand may be as bad as the thrust of a bayonet," nay, it will probably do more extensive mischief; "arte non vi," says our author, "act like men not like brutes," "a meddlesome midwifery is bad." Such admonitions cannot be too frequently repeated; they should stand as mottos to every chapter that treats of labour; they should be emblazoned in letters of gold on the walls of our lecture-rooms; again and again we should inculcate them in our lectures; impress them on our pupils at the bed-side, and let them be to ourselves a never-ceasing rule of conduct, a voice of conscience, whispering to us, "composure, perseverance, gentleness, patience," and like the voice of the slave who was placed in the triumphal chariot of the Roman conquerors, reminding us that we also are responsible agents.

The directions for the management of the different forms of hæmorrhage are almost unexceptionably excellent, and we think we shall do an acceptable service to our junior readers at least, by quoting the following passage:

"Beware of being deceived by the rule, (if rule it can be called,) which has deceived many, I mean that of waiting for the pains in flooding cases. The silly rule is the title by which I would designate it; and I use the expression, though quaint, under the hope that it may become fixed upon the mind, and may, by the caution it intimates, prevent you being misled. In cases where large quantities of blood are coming away from the uterus the womb becomes paralytic; the pains which were commencing, leave the patient, and *the larger the bleeding the less the pain*, more especially in the latter months; understand, therefore, if the want of pains is to be considered at all, that it is rather to be considered as an indication to interfere than to refrain."—pp. 354-5.

The truth and value of this observation cannot be too forcibly inculcated; the prejudice on the side of error is so strong, so deeply rooted, and so many lives have been lost by adhering slavishly to the maxim, that without pains nothing can be done. We very recently witnessed a case, which spoke trumpet-tongued the horrors of such practice. A lady, the mother of seven children, and about to give birth to an eighth, was at the end of the ninth month seized with hæmorrhage on a Sunday evening, which

was allowed to continue without almost any interference until the following Saturday morning, when we were called in to see her, in opposition to the wishes of her attendant, a midwife of twenty years' practice. We found the lady moribund, and the placenta over the os uteri, which was well dilated. On our charging the midwife with the atrocity of her conduct, her reply was, *that it was only that morning the after-birth came to the mouth of the womb, and that every body knew that nothing could be done until the proper pains came on*; but thus was the mother of eight children lost to her family and to society.

Having said thus much in praise of this section of the book, justice compels us to add, that there is here also much of which we disapprove; and the following declaration strikes us as very singular:

"Giving my attention almost entirely to the difficult forms of labour, I have not had much opportunity of remarking, in many cases, those indications, which in natural labour foreshow its probable duration."—pp. 227-8.

We confess, it is beyond our comprehension, how any one could become conversant with the management of difficult forms of labour by any other means than repeated observation in many cases of natural labour, of all its phenomena, and especially of "those indications which foreshow its probable duration." To our junior brethren of the profession, we particularly address the caution, not to be influenced by such a statement as the above, and entreat them to believe, that by no other means than first acquiring a complete and perfect knowledge of the process of natural labour, can they ever expect to become expert in the management of those cases, which become difficult, just in proportion as they vary from the natural conditions.

In page 236, we find the following direction given:—

"Now when you are desirous of discovering situation, make it your first endeavour to distinguish the ear, by interposing the finger between the symphysis pubis and the head of the fœtus; and there, if the accoucheur be skilful, and the condition of the labour natural, without difficulty, even in the earlier parts of labour, the ear may be felt."

To this we must object, *first*, that according to our experience, and we think our readers will agree with us, the ear cannot be felt "in the earlier parts of labour;" nor until the head has descended considerably into the cavity of the pelvis; and *secondly*, when it can be touched, it will not be found behind the symphysis pubis, but more to the side of the pelvis, behind the foramen thyroideum, or, in other words, it lies at the anterior termination of one or other of the oblique diameters of the pelvis.

In page 428, we have the following eulogium on Truth, which is in a very lofty strain, and intended, we feel quite sure, to be a specimen of very fine writing.

“From the most violent conflicts of opinion truth has nothing to fear; though long to us, to her a thousand years are but as one day,—a point,—a nothing in the eternity of her duration. Oppressed amongst us, beneath the chaos of human follies and errors, she must, she will emerge unhurt at last,—unchangeable as her author. By the mere force of durability, she must ultimately stand alone,—solitary amid the wreck of those perishable materials by which for a time she is overwhelmed. ‘And the ark floated in the midst of the waters.’ To her, the living spirit of philosophy,—immutable, immortal, infinite, eternal truth;—to her, parent of all knowledge, fountain of light, to her may be addressed, without perversion or hyperbole, the sublime apostrophe of the poet:

“The stars shall fade away, the sun himself
Grow dim with age, and nature sink in years,
But thou shalt flourish in immortal youth,
Unhurt.”

All this is doubtless very fine, but we cannot help thinking that the brilliant encomium which it embodies, is strangely contrasted with a departure from the laws of the goddess so beatified, to be found in a passage on a very important subject, concerning which Denman is made to say that which Denman never said, and to advise that which he never recommended: but for fear of misapprehension, we shall just place the original and the transcript side by side, and let the comparison suffice for a comment:

TRANSCRIPT.

“Observing these spontaneous evolutions,” as he significantly called them, “and unwilling to interfere without need, Dr. Denman advised, that in arm presentations we should always confide the delivery to the natural efforts, abstaining from the introduction of the hand into the uterus.”—*Blundell*, p. 384.

ORIGINAL.

“In the second order of preternatural labours, the presentation of the shoulder, or one or both arms, may be included, and whichever of these is the presenting part, there is a necessity of turning the child and delivering by the feet, for the interest both of the mother and child.” “Yet the knowledge of this fact, (the evolution), however unquestionably proved, does not free us from the necessity and propriety of turning children presenting with the superior extremities, in every case in which that operation can be performed with safety to the mother, or give us a better chance of saving the child.”—*Denman*, pp. 476, 491, 2. Edit. 5th.

We know of nothing more reprehensible or more unpardonable, than such a wilful misrepresentation as this of the opinions of one to whom all look with deference, and whose midwifery precepts have had their value more and more approved by time, and confirmed by experience.

As a literary composition, the work is most sadly disfigured, plain language and good taste being constantly sacrificed for an unpleasant affectation of terseness, aimed at by inverting or transposing the members of an ordinary sentence, or by a pedantic substitution of strange bombastic words for those in common use, such as "logomachies," for disputes, p. 211; "the lower frustrum of the ovum," p. 219; "phases of the os uteri," p. 223; "pultification," for softening, p. 253; "a rule of composite order," p. 257; "embryospastics," p. 604; "fugacious hidrosis," p. 780; and what is still more to be regretted, there is very often a frivolity in the sentiments expressed, which, however amusing, when heard in an extemporaneous lecture, is but little suited either to instruct in the closet, or impress the public with a favourable or respectful feeling for the subject treated of. But above all we condemn, with the most unqualified severity, the indecent and irreverent introduction on trivial occasions of passages from the most sacred portions of the holy Scriptures: the reader will hardly credit us when we tell him, that in page 214 he will find a sort of parody on one of the petitions of the Lord's prayer; and in p. 265, we are shocked with an equally reprehensible use of the words of our Saviour, where the solemn exhortation which follows the parable of the sower, is impiously appropriated to a subject so mean as the lesson taught by a pathological preparation; the author has surely learned, that a man should be merry and wise, and in future we would advise him to recollect, that in order to be impressive, it is by no means necessary to be profane. The editor has taken the unnecessary trouble of giving us the derivations of several of the technical terms used, an undertaking in which he has certainly not succeeded very happily. He tells us, p. 34, that "uterus is derived from *υστερα*, the womb;" whereas it is really a word of Latin origin, and derived, according to Ainsworth, from *uter*, a bladder or bag; probably the writer was thinking of hysteria, or some of the adjectives thence derived. We are told, p. 101, that "placenta is derived from *πλακους*, a cake," whereas this also is a Latin word, and derived from *placeo*, to appease, because the round cakes, from its resemblance to which it took its name, were used in the propitiatory sacrifices to the gods. In another place, p. 105, we learn with unalloyed satisfaction, that "funis is derived from *funis*, a rope or cord;" with less satisfaction, but much greater surprise, we discover,

p. 37, that "ovaria is the *diminutive* of ovum, *because* they are the *receptacles* of the ova, or eggs of the female:" in our simplicity we thought that *ovulum* was the diminutive, but here we discover the novel fact, that one noun substantive is the diminutive of another, because it implies something much greater. But probably one of the drollest of these classical jokes will be found in the derivation of the word chorion, which we are informed is "from *χωριον*, and that from *χωρεω*, to escape, because it always escapes from the uterus with the child." "Risum teneatis amici?" forgive us if we indulge in conquassating cachinnations. Verily if this be some of the editor's "fresh matter," he is a laughter-loving wag, and it is but justice to him to say that Swift's Ajax, Andromache, &c. are nothing to his Greek roots. We remember to have met with a French epigram, which so happily ridicules this sort of etymological gambols, that our readers will, we hope, excuse our transcribing it here:

" *Alfana* vient d' *Equus* sans doute,
Mais il faut avouer aussi,
Qu'en venant de la jusqu'ici,
Il a bien changé sur sa route."

The editor and our readers will, we hope, pardon us if we indulge, in a solitary instance, the derivative vein, in explanation of a word already remarked, viz. "pultification," a term adopted, we presume, *euphonia gratiâ*; and as we would conjecture, most probably derived from the Irish word polthiogúe, which signifies, a great blow, which beats a thing into mummy, and is apparently derived from πολλ' pro πολλος, many, φθιω to slay, and Ογ kind of Bashan. Now, if this be correct, it leads us at once to the interesting fact, that the aboriginal Britains, the native Irish, and the ancient Greeks, were all descendants of Og, and originally the same people: what a bonne bouche for General Vallancey and Mr. O'Brien. Neither time nor space will allow us to enter more at large into the merits or demerits of this book: it has both, but the latter are so numerous, and some of them so censurable, that, as a systematic treatise, or work of authority, it will never command the confidence of the profession.

A Dictionary of Practical Medicine, &c. By JAMES COPLAND, M.D., &c. &c. Parts I and II. London, 1833.

WE owe an apology to the learned author of this work and to the public, for not having before noticed this important and

valuable book. Its nature precludes our attempting a detailed review. Indeed, for such a task, a second Copland would be required, and there is little chance of such being found. Suffice it to say, that the work is a monument of medical research never equalled. In this respect alone its value is incontestable: but it is not as a mere digest of medical literature that it has such value, for the author's experience is brought to bear on most of the practical points treated of, and his precepts are scientific and judicious. We feel convinced that Dr. Copland has supplied a great desideratum in medical literature; and that his work must have an extensive circulation. As a specimen of our author's style, and his great research, we shall insert the following quotations taken at random:—

“1. INFLAMMATION OF THE DIAPHRAGM.—SYN. *Diaphragmitis* (Hildenbrand, J. Frank, &c.); *Paraphrenitis*, *Paraphrosynis* (Rufus Ephesius, et Auct. Vet.); *Diaphragmite*, *Paraphrénésie*, Fr.; *Zwergmuskell-Entzündung*, Ger.

CLASSIF. III. CLASS, I. ORDER (*Author*.)

“2. DEFIN.—*Acute pain and constriction of the lower part of the thorax, extending to the back and loins, increased upon respiration and raising the body erect, with singultus, convulsive distortion of the angles of the mouth, and very acute inflammatory fever.*

“3. i. SEAT.—Inflammation of only the musculo-tendinous structure of the diaphragm is a very rare disease, particularly in its primary form; and I believe is very seldom met with, excepting upon the disappearance of rheumatism from some external part, or after penetrating wounds and other external injuries. As a consecutive or secondary affection, and especially in conjunction with inflammation of one or more of its serous membranes, it frequently occurs, although often either entirely overlooked, or mistaken for inflammation of some one of the adjoining viscera. The advantages of being able to distinguish it in practice are not diminished on this account; and it often becomes of great importance to ascertain its existence, whether as a primary or as a consecutive disease.

“4. I believe that inflammation may originate in the cellular tissue connecting the serous membranes reflected over the diaphragm to its musculo-tendinous structure, in which case the disease will extend chiefly to either one or both of those surfaces; but that, in the more frequent states of diaphragmitis,—particularly its consecutive form,—the inflammation commences in one of the serous surfaces, and extends thence, through the medium of the sub-serous cellular tissue, more or less to the other structures of the organ.

“5. ii. The Causes of diaphragmitis, particularly in its consecutive forms, are generally those which are productive of pleurisy, pneumonia, hepatitis, or peritonitis. In addition to those, I may adduce others, which have a more evident influence in producing this

disease, viz. punctured and other wounds; external injuries and fractures of the lower ribs; concussions of the trunk, particularly from missing steps on descending stairs, or from falling upon the hips, immoderate laughter; violent retchings; continued crying and weeping; obstinate singultus; currents of cold air, when the body is perspiring; the incautious use of cold drinks, ices, &c.; the suppression of painful emotions; violent efforts of any description; the repression or metastasis of rheumatism; the stoppage of accustomed discharges; and the drying up of old eruptions or ulcers by external applications. Instances of the occurrence of inflammation of the diaphragm from the repression of rheumatism have been recorded by PATERSON (*Mem. of Med. Society of London*, vol. v. No. 32.) and PORTAL (*Anat. Méd.* t. ii. p. 444.); and from healing up old sores, suppressing gout, &c., by AASKOW (*Act. Reg. Soc. Med. Hafn.* t. i. p. 205.), BOISSEAU (*Nosographie Organ.* t. xi. p. 620.), WENDT, SELLE, and others. HILDENBRAND considers the habit of wearing tightly laced corsets a cause of the disease. I doubt not that it is, at least, a predisposing cause.

"6. iii. SYMPTOMS, COMPLICATIONS, &c.—A. Either after rigors, chills, horripilations, &c., or consequent upon disease of some one of the abdominal or thoracic viscera, the patient experiences violent, sharp, burning pain, tension, and cord-like constriction, at the lower part of the thorax, particularly beneath the sternum and hypochondria, and stretching to the loins,—increased and descending lower during inspiration—diminished and ascending during expiration,—augmented by coughing, sneezing, fulness of stomach, and pressure on the abdomen; likewise by vomiting, by the expulsion of the fæces or urine, and by bending the trunk of the body in any direction. The breathing is short, frequent, anxious, small, and performed entirely by the intercostal muscles, the abdomen being nearly motionless. The hypochondria fall inwards, or are retracted, and, with the precordia, are sensible to pressure. There are frequently painful and difficult deglutition, referrible to the lower part of the œsophagus and cardia; great anxiety, with occasional interrupted sighs; singultus, particularly towards the close of the disease; involuntary retraction of the angles of the mouth, or risus sardonicus; delirium, which is sometimes furious; spasms, or great feebleness of the muscles of the abdomen and extremities; irritable, porraceous vomiting; leipothymia or sinking, &c. The pulse is always frequent, at first strong and hard, afterwards small, more quick, wiry, &c. The bowels are constipated, and urine in small quantity; thirst is at first urgent, afterwards not felt; and restlessness, particularly as the disease advances, is extreme.

"7. B. *Complicated Forms.*—a. The symptoms vary considerably with the surface of the organ chiefly affected, and according as inflammation of an adjoining viscus may have preceded, accompanied, or followed that of the diaphragm. When inflammation implicates the diaphragmatic pleura, or extends to the lungs, mediastinum, or pericardium, we must expect to observe many of the symp-

toms of those diseases; particularly those consisting of lesion of the function of respiration. Percussion will give out a somewhat duller sound than natural; cough will be more or less complained of, and be frequently attended with a watery mucous expectoration.

"8. When the inferior surface of the diaphragm is inflamed, the stomach and liver seldom escape participation in the disease. In this case the pain and sensibility of the hypochondria are increased, and the stomach is more severely disordered. When the muscular or tendinous structures are chiefly implicated, the complaint assumes its most violent forms; and, owing to the nerves of the organ being then more seriously affected, the sympathetic effects of the disease, as delirium, the sardonic spasm of the muscles of the countenance, singultus, dysphagia, anxiety, retraction of the hypochondria, spasm of the abdominal muscles, &c. are more constant and severe.

"9. Diaphragmitis is sometimes complicated with, at other times consequent upon, acute rheumatism; and I believe that it may be associated both with inflammation of the convex and posterior part of the liver, and with acute rheumatism, in the same case and at the same time. I am at present attending a patient, in whom there is every reason to infer the existence of this very complicated malady; and am of opinion that similar associations of the disease would have been more frequently remarked in practice, if the severity of the rheumatic pains, and of the remote symptoms caused by inflammation of the diaphragm, had not masked those more directly connected with the affected organ, and thereby misled the practitioner.

"10. There are several symptoms which have been adduced by authors as pathognomonic of this malady, but which are not uniformly observed: thus, STOLL, AASKOW, and BOISSEAU have found delirium frequently wanting altogether: and, in several cases, in which I have seen the disease complicated with hepatitis and pleuritis,—particularly the former,—neither delirium, nor the cynic spasm, was present. I agree, however, with J. P. FRANK (*De Curand. Morb. Hom.* t. ii. p. 193.), in considering these symptoms as being more frequently met with in this disease, than in any other affecting the viscera of the large cavities, and particularly when the tendinous part of the organ is affected.

"11. *C. Course and Termination.*—The course and progress of this disease are generally acute. If it terminate not in resolution within a few days, it produces either adhesion to the adjoining viscera, or disorganization, followed rapidly by death. When adhesions form, signs of *chronic* disease of this and the adjoining viscera continue after the subsidence of the acute symptoms; but when disorganization and gangrene supervene, the patient experiences, after a very few days, a sense of suffocation, sinking, with singultus, extreme frequency and smallness of pulse, faintings, &c., speedily followed by dissolution.

"12. *D. The Morbid Appearances* most frequently found after diaphragmitis are, effusions of coagulable lymph, or of sero-albuminous fluid, or of both, on either of the surfaces of the organ.

generally with adhesions, more or less extensive, to the adjoining viscera; increased redness and vascularity, or deepness of colour, of one or more of the different structures composing the organ; false membranes upon its surfaces; portions of it ulcerated, or of a dark colour, softened, and nearly disorganized; and, more rarely, sphacelated in parts, infiltrated with pus, or containing one or more distinct purulent collections.

“ 13. iv. PROGNOSIS.—Recovery from this malady should be considered as very doubtful, until we have very unequivocal symptoms of resolution, without any sign of the extension of disease to the organs situated on either side of the diaphragm. *a.* The circumstance of diaphragmitis arising from external injury, or the extension of inflammation from the pleura and pericardium; the early accession of urgent anxiety, followed by delirium: singultus, and sobbing; depressed, collapsed, and anxious countenance, with spasms of the muscles of the face; irregularity, intermission, and smallness of pulse; coldness of the extremities; leipothymia; difficult deglutition; frequent and irritable vomiting, and restlessness; absence of thirst; convulsions; convulsive, frequent, and laborious respirations, &c.; are very *unfavourable* symptoms. *b.* The subsidence of the urgent symptoms; an improved state of the pulse, and appearance of the countenance; the occurrence of any of the critical evacuations, or restoration of the suspended secretions, or a sound and refreshing sleep; a more natural respiration, and the absence of serious disease of the collatitious viscera; are the most *favourable* circumstances.

“ 14. vi. TREATMENT.—The intentions of cure are the same in this as in other acute inflammations. The antiphlogistic treatment promises us the principal aid; but to be successful, it must be employed early in a decided manner. Full *blood-letting* from the arm, the patient being in a semi-recumbent posture, until a decided effect ensues—until syncope approaches, but is not induced—as recommended in another place (see BLOOD, § 64.); afterwards *cupping* on the loins and back, on each side of the spine; *leeches* applied near the anterior insertion of the diaphragm; *purgatives*; refrigerating *diaphoretics*; febrifuge diluents; external fomentations and cataplasms; tepid baths; purgative, and subsequently emollient enemata, with complete stillness and silence; should be employed according to the exigencies of the case. The practitioner ought not to be deceived by the presence of singultus, and the great depression of the powers of life so frequently attendant on the disease; and thus be led to the exhibition of antispasmodics and stimulants, when opposite measures are requisite. Nor should he be induced by the state of the stomach, and of the matters discharged from it, to exhibit emetics. When vomiting is present, it should be allayed; and, for this purpose, as well as to prevent the formation of coagulable lymph and adhesion between the surfaces of the organ and the adjoining viscera, large doses of *calomel* and *opium*—from ten to twenty grains of the former, and from one to three of the latter, either with or without from one to three grains of *camphor*—should be exhibited, and

repeated at intervals of six or seven hours ; the first dose being given immediately after the first blood-letting. The danger of the disease requires prompt and powerful agents ; and, after depletions, the combination of calomel, opium, and camphor, is particularly serviceable.

“ 15. When the disease is associated with inflammation in the adjoining viscera, the calomel should be carried so far as to affect the mouth ; and if the *pleura* or *pericardium* be also diseased, antimonials and diuretics ought to be added. If the convex or posterior parts of the *liver* and *peritoneum* be also inflamed, the use of mercurials are also required, and with nearly the same intentions, viz. to prevent adhesions, and procure the absorption of effused fluids. If the disease be associated with *rheumatism* or gout, then, after local depletions, active mercurial cathartics, and derivatives applied to the joints, colchicum, with large doses of soda or potash, or with magnesia, ammonia, or camphor, may be exhibited.

“ 16. It often happens, that after the inflammation in this organ and its collatitious viscera is subdued, considerable irritability, evinced by the occurrence of singultus upon taking substances into the stomach, continues for some time. To remove this, the use of gentle tonics, combined with anodynes and antispasmodics, as the infusion of calumba, with opium, sub-carbonate of soda, hyoscyamus, or camphor, is generally required, or of the infusion of valerian, or of the oxides of zinc, or the subnitrate of bismuth, or musk, &c. *Convalescence*, and the *regimen* of the patient, are to be managed precisely as in other inflammatory diseases.

“ 17. II. DIAPHRAGM, ORGANIC LESIONS OF. —i. PERFORATION of the diaphragm is not an uncommon consequence of abscess of the liver, pointing up towards the thorax. In the great majority of such cases, adhesion of the adjoining surfaces of the liver and diaphragm has preceded the perforation ; and, when this has been accomplished by the disorganizing process following the inflammation excited in the diaphragm, the contents of the abscess pass either into the cavity of the thorax, or, adhesion of the inflamed diaphragm to the lungs having also taken place, into the lungs, whence it may be expectorated, and the patient even recover. (See LIVER—*Abscess of the.*) Instances have even occurred of the abscess having thus transversed the diaphragm, and opened into the pericardium.

“ 18. Perforation of the diaphragm has likewise taken place from abscess of the spleen, and from ulcerations of the stomach, which had adhered to the diaphragm. It has very seldom been observed that the perforation of this organ has occurred in an opposite direction, namely, from the thorax downwards. But PORTAL (*Anat. Méd.*) met with a case, in which an imposthume of the lungs opened through the diaphragm, and burst into the abdominal cavity. The diaphragm may likewise be perforated in this direction by aneurism of the aorta. MECKEL also found *ulceration* of the diaphragm, apparently resulting from chronic inflammation, in the dissection of a maniacal patient.

“ 19. ii. RUPTURE of the diaphragm sometimes occurs from

falls; violent succussions of the trunk; vomiting, or severe retchings; blows on the abdomen, back, hypochondrium, or epigastrium; suppressed efforts, and sudden muscular exertions. M. PERCY states, that a young female, suppressing the pains of child-birth, uttered a plaintive cry, had her mouth hideously distorted, and shortly afterwards expired, giving birth to a child. On dissection, the diaphragm was torn obliquely in the fleshy part of the left side. Two-thirds of the stomach, with a portion of the omentum and colon, had passed through the rupture into the thorax. On another occasion, M. PERCY found, after a fall, the ribs of the patient very prominent; the abdomen, at its upper part, sunk inwards; and the countenance presenting the risus sardonicus. He prognosticated a rupture of the diaphragm, which was found after death. (PERCY, *Dict. de Scien. Méd.* t. ix. p. 214.) Rupture of the diaphragm is not necessarily immediately fatal. BOISSEAU (*Nosog. Organ.* t. ii. p. 623.) mentions a case, where a patient lived six months, and followed his occupations, after the occurrence. A person having taken an emetic, died soon afterwards with convulsions, the cynic spasm of the muscles of the face, &c. On examination, the tendinous part of the diaphragm was found torn near the part where the intercostal nerve passes through it.

“20. iii. VARIOUS MORBID PRODUCTIONS have been found more or less intimately connected with the diaphragm, in persons who had experienced disorder of the respiratory function. These have consisted of *tumours* of various descriptions, encysted or unencysted; *cartilaginous* or *osseous formations*, and *earthy concretions* in its surfaces (SCHREIBER, LEVEILLE, VOIGTEL); fleshy tumours; and large *fibrous cysts* containing hydatids (PORTAL), or merely an aqueous or serous fluid. It is not unfrequently found partially *displaced* in aneurism of the heart and aorta. Cases of this description are recorded by VETTER and BLANCARD. It is also pressed high into the thorax by enlarged or suppurated liver.

“21. iv. SPASMODIC ACTIONS.—The diaphragm contracts forcibly in crying, coughing, vomiting, during the expulsion of the excretions, childbirth, and tenesmus. It contracts slowly, but forcibly, and is rapidly followed by relaxation, in sighing. It contracts for a longer time, and is relaxed more quickly in yawning. The contraction is more rapid, forcible, and interrupted by closure of the glottis, in hiccup, sobbing, &c.; and sneezing is owing to convulsive contraction of the diaphragm, followed soon afterwards by convulsive action of the expiratory muscles. In all these, the other inspiratory muscles co-operate more or less energetically.

“22. The motion of the diaphragm is generally more frequent, irregular, and unequal, than natural, in convulsive diseases, particularly when the irritation is propagated to this part, or influences the functions of the par vagum, by being extended to the top of the spinal chord, &c. This is evinced in epilepsy, hysteria, pertussis, &c. The contractions of the organ are still more disordered in tetanus, they being nearly permanent about the fatal close of the disease.

Death is occasioned by this, rather than by any other circumstance; the permanent spasm of the diaphragm and other respiratory muscles preventing the expulsion of the inspired air, and consequently producing a variety of asphyxy. (See art. HICcup.)

"23. v. PARALYSIS of the diaphragm is incompatible with the duration of life, and can occur only during the last moments of existence. It may be induced by the inhalation of noxious gases into the lungs, and from virulent poisons, thus constituting another form of asphyxy; and it is produced by injuries of the medulla oblongata, or in its vicinity, or by whatever may interrupt the functions or injure the par vagum. I have met with a case where it followed, at a remote period, fracture by muscular action of the dentated cervical vertebra, as verified on dissection by professor R. QUAIN and myself.

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And again,

"109. IV. PUERPERAL ASCITES.—i. PATHOLOGY.—The more frequent occurrence of ascites in the female sex has been partly attributed to the influence of the female organs in giving rise to it (§ 35. 89.), independently of the puerperal states. But effusion into the peritoneum may occur either (*a*) during pregnancy, or (*b*) after delivery.—*A. The association of ascites with pregnancy* has been noticed by several of the older writers, and by many of the moderns, and is not an infrequent occurrence. Either impregnation may take place during the dropsical disease, which is very rarely the case; or the effusion may be excited by pregnancy, being favoured by pre-existing obstruction in the liver, or a plethoric state of the system. This latter is the common mode of its appearance. It is generally of a sthenic or plethoric character, and is often associated with impeded circulation through the liver, or the right side of the heart; although it may be occasioned solely by changes induced by utero-gestation, and independently of visceral disease. In this latter case, the ascites seldom commences until about the third month. When it exists, the form or even the body of the uterus often cannot be ascertained by a careful examination of the abdomen, unless with difficulty, when the

patient is quite supine, with the hips elevated. The hypochondria become enormously distended and elevated as the effusion and pregnancy proceed. The urine is lateritious, scanty, and of a high colour: and there is much thirst, and pains in the back, loins, and thighs. SCARPA states, that fluctuation is obscure in the hypogastric region and flanks, but distinct in the hypochondria, particularly in the left. The state of the os uteri, the patient's sensations, and the history of the case, will generally enable the practitioner to decide as to the nature of the complication and the period of pregnancy. This state of disease becomes remarkably distressing. The patient is afflicted by dyspnœa; and by cramps, pains, and œdematous swellings of the lower limbs, from pressure on the nerves and vessels supplying them, and by sickness and vomitings. She is unable to ascend the stairs, or to lie down in bed. The bowels are very constipated, and the breathing short and difficult; to these often are superadded great anxiety, lividity of the lips and countenance, heavy and somnolent headach, leipothymia, palpitations, and other symptoms indicating the propriety of having immediate recourse either to paracentesis, or to the rupturing of the membranes. When the disease is dependent upon obstruction or structural lesion of the substance of the liver, a *fatal issue* often takes place soon after delivery, whether that have been premature or at the full time. But when it is occasioned chiefly by the changes in the nervous and vascular systems, and state of the circulation connected with pregnancy, a favourable termination may be expected. SCARPA, DESORMEAUX, and LEE, record cases, in which this disease was still further complicated with dropsy of the amnion (§ 115.).

"110. *B.* Ascites more frequently occurs *subsequently to delivery*, but at no definite time; either in a very few days, or not until some weeks, or even months, afterwards. It may either be a sequela of the adynamic form of puerperal fever, of which I have observed two cases; or of peritonitis; or of inflammation of the uterus, ovaria, or of their veins, occurring at this period. It may likewise be induced by suppression of the lochia; or by a diarrhœa which has been suddenly arrested before disordered secretions and accumulated fœces have been evacuated; or which has been long neglected, or injudiciously treated. It is generally acute or sub-acute, when it appears in this manner; but if it occur in females who have been ill-fed, or who have experienced large losses of blood about the period of labour, it possesses very different features.

"111. ii. TREATMENT.—(a) *Ascites associated with pregnancy* is seldom benefited by diuretics. In two cases which came under my care, and presented the symptoms described above, early, repeated, and moderate venæsection; a gentle and constant action upon the bowels by cream of tartar and confection of senna; and full doses of opium, assisted by various other means directed according to the symptoms; carried both patients to about the full period of gestation; and both bore living children. After delivery, the rapidity with which the water passed off by the kidneys was surprising. In one of the

cases, three large chamber utensils were filled in twenty-four hours. Paracentesis was urged by the ordinary medical attendant in one of these, but was delayed as a last recourse: it was not performed in either. Utero-gestation very seldom reaches the full time, when fluid is effused into the abdomen, whether the operation be resorted to or not. SCARPA advises its early performance, and adduces a case in which this complication was aggravated by dropsy of the amnion, and in which it was performed under the left false ribs, and the patient recovered. It was also resorted to successfully in the one recorded by Mr. LANGSTAFF. In M. DESORMEAUX's case there were ascites, dropsy of the amnion, and anasarca. He punctured the membranes, and brought on labour. The instance adduced by Dr. R. LEE, resembled that mentioned by SCARPA. The *cervix uteri* being obliterated as in the ninth month of pregnancy, he ruptured the membranes, and brought on labour; after this the patient slowly recovered.

" 112. (b) As to the treatment of *ascites occurring soon after delivery*, the same means, appropriately to the circumstances of the case, as have been already described, are to be put in practice. The great majority of such cases will recover under judicious management, if the liver or uterine organs be not very seriously diseased. Paracentesis is very seldom required; and I believe the risk of performing it to be greater in this state of the disease, than in any other, from its liability to induce asthenic inflammatory action in the peritoneum, and to increase it if it be already present. I may add, that instances have occurred in which air has been extricated from the decomposition of the animal matter in the fluid effused, particularly when the disease has depended upon atonic inflammatory action in this membrane, and thus the ascites has become complicated with true tympanitis. This is more likely to occur, after paracentesis has been employed in a case of this description.—(See *Author*, in *Lond. Med. Repos.* vol. xvii. p. 378.)

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"ii. PUERPERAL ASCITES.—*Rhuysch*, Observ. Chirg. No. 70.—*Berchermann*, De Ascite cum Quartana in Gravida. Giess. 1752.—*Mauriceau*, Traité des Maladies des Femmes Grosses, vol. ii. p. 59, 204.—*Boehmer*, De Complicata, cum Abdominis Hydropse Graviditate, ejusque Signis. Halæ, 1770.—*Chambon*, Maladies des Femmes, t. i. p. 28.—*Baraillon*, in Mém. de la Soc. R. de Méd. an. 1784, 1785.—*Laurin*, in Med. Observ. and Inquir. vol. v.—*Osiander*, Beobachtungen, &c. p. 114.—*J. P. Frank*, De Curand. Homin. Morb. vol. vi. pars i. p. 278.—*Scarpa*, Sulla Gravidanza Susseguita de Ascite, &c. Trev. 1817.; et in Journ. of For. Med. vol. i. p. 249.—*Langstaff*, in Transac. of Med. and Chirurg. Society of Lond. vol. xii. p. 372.—*J. Burns*, Principles of Midwifery, 6th ed. p. 238.—*Desormeaux*, in Dict. de Médecine, vol. xi. p. 391.—*Portal*, Observat. sur la Nature et le Traitement de l'Hydropisie, vol. i. p. 213.—*R. Lee*, in Lond. Med. Gazette, vol. vii. p. 387.

"V. DROPSY OF THE AMNION.—*Hydrops Amnios*, Mercier; *Hydrops Amnii*; *Hydrometra of Pregnant Women*, Desormeaux.

"113. DEFIN. *The preternatural distention of the uterus, by an excessive secretion of liquor amnii, giving rise to symptoms of ascites, sometimes with obscure fluctuation.*

"114. i. PATHOLOGY. A morbidly increased secretion may take place, 1st, within the amnion; and, 2d, between the membranes and uterus. The former usually occurs during advanced utero-gestation; the latter in the early months, and generally passes off without occasioning any disturbance as pregnancy proceeds. The excessive accumulation of fluid in the cavity of the amnion was first accurately described by M. MERCIER; and it was imputed by him to inflammatory action in this membrane. It has more recently been noticed by MM. MAUNOIR, DUCLOS, and DESORMEAUX; but the researches of this last physician have not confirmed this view of its origin. Dr. R. LEE has recorded five cases, in none of which were any inflammatory appearances in the amnion, and only in two were there inflammatory or dropsical symptoms in the mother. But in all of them, some malformation or diseased condition of the involucra, or of the fœtus, existed, and rendered it incapable of supporting life subsequent-

ly to birth. It is sometimes connected with a dropsical diathesis in the mother; but is more frequently entirely dependent upon disease of the fetus and its envelopes. It possibly may also depend upon an affection of the uterus itself, as hinted by M. DESORMEAUX.

"115. The *Diagnosis* of dropsy of the amnion in its *simple* form, and where the quantity of fluid is not very great, is difficult. Fluctuation is obscure, deep seated, or wholly imperceptible. On examination, however, *per vaginam*, the body of the uterus is prematurely enlarged; the cervix is almost entirely obliterated; and there is a sense of fluctuation in the vagina upon percussion of the abdomen. The rapid increase of the uterus, the gravative pain in its region, the feeling of weight and pressure in the pelvis, the frequent calls to evacuate the bladder, and scanty secretion of urine, will further guide the practitioner. The diagnosis, however, will be rendered more difficult if it be complicated with ascites, as in the instances recorded by SCARPA, DESORMEAUX, and Dr. LEE. In this case there will be fluctuation on percussion, but this will be no sure information as to the situation of the effusion. The progress of the enlargement of the uterus, and the result of the vaginal examination, in connexion with an attentive manual investigation of the abdomen, alone can furnish correct indications as to the nature of the disease.

"116. ii. TREATMENT.—The chief intentions are to relieve urgent symptoms, and to carry the patient safely, if possible, on to the period of delivery, (DESORMEAUX and LEE). These objects may be attained by the treatment I have already advised (§ 111.), when the constitutional powers will admit of it. But if the symptoms become urgent, and the functions of the stomach entirely overturned, the advice of DESORMEAUX to puncture the membranes and induce delivery should be followed; when the disease will be remedied, if not complicated with ascites; in which case, the means already described must be practised.

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To compare this work with what in our opinion has been improperly called *its rival*, the Cyclopædia of Practical Medicine, seems unnecessary. In fact, the two works are essentially different. In the latter, the writers have had an option in the choice of articles, and consequently there are many admirable monographs, on subjects with which the respective authors were more particularly intimate, and it is this which gives the work its peculiar value. As might be expected, the Cyclopædia is compara-

tively deficient in bibliographical research; a want which has not escaped the editors, and which they are taking measures to remedy. Of many articles in this work we have already expressed our high opinion. In taking leave of Dr. Copland we shall merely say, that we long to see the next part of his work, and have no doubt, but that, like its predecessors, it will be characterized by learning, judgment, experience, and honesty.

W. S.

SCIENTIFIC INTELLIGENCE.

CHEMICAL AND PHYSICAL SCIENCE.

Experiments on the Blood, by L. Gmelin, F. Tiedemann, and E. Mitscherlich.—No part of the animal system is so important, with respect to chemical physiology, as the blood. Every thing which has been assimilated passes into it, by its means the system is enabled to derive from the air the vital influence of respiration, and by it are formed all the solids, all the fluids of the body: an accurate knowledge of the composition of the blood is, therefore, obviously necessary in investigations connected with the most remarkable functions of life, such as digestion, respiration, nutrition, and secretion. These considerations induced us to institute the following series of experiments:—

I. *Experiments to ascertain the quantity of Carbonic Acid contained in the Blood.*—The results arrived at by different distinguished experimenters, have not yet decided the question whether the blood does or does not contain carbonic acid. These results, indeed, are extremely difficult and contradictory. Thus, on the one hand, Vogel* found that fresh bullock's blood, placed under the receiver of an air pump, evolved carbonic acid gas in a quantity sufficient to render lime water turbid. Scudamore arrived at the conclusion, that the coagulation of the blood is essentially connected with the development of carbonic acid gas, and according to his experiments, six ounces of blood placed in an exhausted receiver exhaled, as was proved by the precipitate it formed with water of barytes, from one-third to one-half a cubic inch of carbonic acid gas. According to Brande,† one ounce of arterial or venous blood exhales *in vacuo* two cubic inches of gas.

On the other hand, Darwin‡ long ago announced the fact, that when two ligatures were applied to the jugular vein of an animal, and the portion of the vein included between them, was placed in an exhausted receiver, that portion did not swell or become distended, as it must have done had any of its contents been gaseous. According

* Schweigger Journal d. Chem. v. Phys. B. xi. s. 399.

† Philosophical Transactions, 1818, p. 181.

‡ Ibidem, vol. lxiv. p. 2.

to John Davy's experiments,* no gas whatever is disengaged from coagulating blood, neither under the ordinary pressure of the atmosphere, nor in the vacuum of the air pump, or when heat is used to cause its coagulation; on the contrary, Davy asserts, that the serum possesses the power of absorbing carbonic acid gas in considerable quantity, a property at variance with the supposition, that it already contained that gas in any notable quantity.

These striking contradictions induced us to make fresh experiments on blood placed *in vacuo*. They were conducted in the following manner:—The crural vein and artery of a living dog being laid bare, small metal tubes were introduced into them, each provided with a cock, and fastened to the vessel by a ligature. These tubes were connected with small flexible catheters, through which the blood could be made to flow in any desired direction. Cylinders of glass three and a half inches high, and one inch in diameter, were filled with mercury, and the greatest care having been taken to remove all included air bubbles, they were inverted in a cup containing quicksilver. We then turned the cock of the metal tube connected with the vein, and having allowed the blood to flow through the flexible catheter, until all the air within was expelled, we brought the extremity of the catheter beneath the inverted cylinder, in which we then collected the blood without any difficulty, until half the cylinder was filled with venous blood. The same process was pursued in obtaining arterial blood for our experiments, and in both cases we were fortunate enough to prevent the smallest bubble of air being mixed with the sanguineous fluid. Placing the venous blood immediately on a dish in the receiver of an air pump, we proceeded to pump out the air without delay, in order to submit the arterial blood as soon as possible to the same experiment. At the commencement of the exhaustion, neither species of blood exhibited the least trace of bubbles; but when the barometer connected with the pump indicated between twenty-seven and twenty-eight English inches, air bubbles were generated, by which the mercury that stood in the cylinder, about one and a half inches higher than in the saucer, now sunk fully one inch, so that its surface was not more than half an inch above the level of that in the saucer. In the venous blood the air bubbles were numerous and minute. In the arterial blood, which was more advanced in coagulation when placed in the receiver, one large bubble first arose in the upper portion of the cylinder, and afterwards another appeared between the blood and mercury.

The bubbles which appeared in both the species of blood on the diminution of the atmospheric pressure must have been owing either to aqueous vapour, or to a fluid of a truly gaseous nature. The first supposition appeared not unreasonable on reflecting that the blood was placed above a column of mercury one and a half inches high, which column must necessarily sink in proportion to the degree of exhaustion produced in the receiver; and it is to be remarked, it was not

* Edinburgh Medical and Surgical Journal, vol. xxix. p. 253.

until this exhaustion was advanced considerably, that the development of bubbles commenced. Whether this was the cause of the bubbles, might, it is evident, be easily decided, for then readmission of air into the receiver would necessarily produce their disappearance. If, on the contrary, they arose from the presence of a permanent gas, then would the readmission of air merely cause the contraction of its volume, for it would not, in all probability, be suddenly reabsorbed by the blood. On readmitting the atmospheric air into the receiver, the bubbles disappeared, and that too before the density of the air in the receiver had become equal to that of the external air.

This experiment proves that when the atmospheric pressure is removed from blood, the bubbles produced do not consist of carbonic acid gas, or any other permanent gas, and we can place greater confidence in this experiment, on account of the extreme care with which it was performed, so as to guard against all circumstances which might have rendered the result doubtful. Thus the blood was entirely secluded from the atmosphere, and the experiment was finished in less than an hour in a room of moderate temperature, so that there was no danger of even incipient decomposition.

It is particularly worthy of remark, that both the venous and arterial blood referred to, coagulated in the usual manner, although not in contact with the atmosphere, and from the moment they were admitted into their respective cylinders, *they exhibited a marked difference of colour*; so that we must dissent from J. Davy's opinion, that the higher tint of arterial blood arises from the foaming state in which it is in the common manner of obtaining it, and also from that which accounts for the difference of tint on a difference of coagulation, for the former was as well marked before as after the latter.

In order, at the same time, to test the truth of J. Davy's assertion, that the serum of blood has a greater power of absorbing carbonic acid gas, than that possessed by pure water, we allowed a large quantity of this gas to enter the cylinder, containing the arterial blood, which had been exposed to the action of the air pump, but which had not been in contact with air. Absorption took place and continued for five days, when it ceased, the temperature in the mean time having ranged from five to ten degrees, (centigrade.)

On the whole, one hundred measures of blood had absorbed one hundred and twenty measures of carbonic acid gas. Having left the blood ten weeks longer in contact with the gas, sixteen measures more were absorbed. These measurements cannot of course lay claim to a very minute degree of accuracy, but are sufficient, however, to corroborate strongly J. Davy's statement. After being so long in contact with the gas, we observed that the clot, which amounted to about one-half the whole volume of the blood, was of a dark red colour, while the serum was transparent, but tinged by colouring matter that appeared rather suspended than dissolved.

We wished to try this experiment under varied circumstances, and more particularly with the view of determining whether the blood, although it contained no free carbonic acid, might contain it in a state

of combination. We collected the blood in the same way, and by means of the same apparatus as before, with this difference, that we introduced the venous blood into two cylinders filled with mercury instead of into one, and in one there was contained a small quantity of recently prepared concentrated acetic acid.

The same was done with the arterial blood. The blood in the cylinder which did not contain acetic acid, conducted itself during the working of the air pump exactly as before; as long as the exhaustion did not amount to twenty-six inches, not the smallest air bubble arose, and it was not until the exhaustion had reached twenty-six and a half, that the formation of a vacuum within the cylinder commenced, for in this experiment the mercury originally stood two inches and a half high in the cylinder. The vacuum or empty space here likewise formed, partly at the upper, partly at the lower surface of the coagulating blood, and in neither cylinder was there any appearance of bubbles coming from the interior of the blood itself. The vacuum or bubble-like appearance immediately disappeared on the readmission of the air.

The arterial blood which had been mixed with acetic acid, was likewise over a column of mercury about two inches and a half high, and when the exhaustion had been carried as far as twenty inches only, many small bubbles made their appearance, and when it arrived at twenty-five inches, the space they occupied above the blood amounted in bulk to one-third of that of the blood itself. On the readmission of air into the receiver, a small quantity of gas remained, which, however, entirely disappeared in a few seconds. The same was observed with respect to the venous blood previously mixed with acetic acid; but the development of gas in this case was more considerable, the space occupied by the rarified gas being equal in bulk to that of the blood itself. Here also, when the air was readmitted, bubbles of larger magnitude remained, although the venous blood experimented on was smaller in quantity than the arterial.

From these experiments it is apparent, that carbonic acid, in a state of combination, exists both in venous and arterial blood, and more abundantly in the former than in the latter. According to this view, the alkaline properties of the blood are to be attributed not to a caustic, but to a carbonated alkali.

The blood, both venous and arterial, which had not been mixed with acetic acid, was placed, as in the first experiment, in contact with carbonic acid gas. In three days, one hundred measures of arterial blood had absorbed one hundred and forty of gas, and one hundred of venous, one hundred and eleven. These proportions must be considered not as perfectly accurate. The blood, both venous and arterial, which had been mixed with acetic acid, left standing for three weeks, was found converted into a firm dark brown mass, not separated into crassamentum and serum.

Soon after the termination of these experiments, which were made last winter, we found that our learned friend C. F. Stro-

meyer,* had arrived at similar results, from experiments somewhat different in plan from ours.

The fact appears therefore established, that the blood contains carbonic acid, but only in a state of combination. Let us compare the different theories of respiration with this result.

Lavoisier supposed that the blood, without coming into immediate contact with the air, exhaled through the bronchial membranes a moisture, consisting chiefly of carbon and hydrogen, and which uniting with the oxygen of the air, formed, by a species of combustion, carbonic acid and water. According to this theory, carbonic acid does not exist in a free state in the blood, and, therefore, the theory is so far consistent with the result we obtained. But it is, on the other hand, for many reasons, very improbable. The existence of such a moisture, containing carbon and hydrogen, exhaled from the air cells, and capable of undergoing combustion at 98°. has never been proved. The penetration of moist animal membranes by the air can scarcely be doubted, and consequently, we must agree with Sir H. Davy in asserting that the blood and atmosphere come into direct contact during respiration.

This distinguished philosopher concluded, from his experiments, that the air penetrates the moist parietes of the pulmonary vessels, and is absorbed by the serum of the blood, its oxygen partly combining with the carbon of the crassamentum to form carbonic acid, and partly remaining combined with the crassamentum. The blood, on the other hand, exhales most if not all the nitrogen of the absorbed air, together with the carbonic produced by the direct combination of carbon and oxygen, and also that which had previously existed in the blood. As Davy found, that when hydrogen was inspired, carbonic acid could be detected in the expired air, although in much smaller quantity than when common air is inspired, he concluded that the venous blood contains some free carbonic acid before it arrives at the lungs. If Davy's view were correct, it follows that arterial blood must necessarily contain so much carbonic acid as it is capable of absorbing, at the temperature of the body, from such a gaseous mixture as is present in the air cells, at the moment of the conversion of venous into arterial blood. The quantity so absorbed ought to be considerable, for at common temperatures we have seen that blood takes up more than its volume of that gas. Had it been so, it must have been detected in our experiments: but it may be replied, the rapidity with which the blood passes through the pulmonary tissue prevents the greater portion of this fluid from coming into contact with the inspired air, and consequently, a small portion of it only is enabled to absorb carbonic acid, and this bears so small a proportion to the whole mass of blood, that the affinity it bears to the serum will prevent its being set free on the removal of atmospheric pressure. A more important objection to Davy's hypothesis,

* Schweigger *Journal für Chemie und Physik*. B. lxiv. s. 105.

that the venous blood contains free carbonic acid, is to be found in the fact, that the venous blood disengages no carbonic acid gas, *in vacuo*, while, according to Davy, the moment it arrives in the lungs, and comes into contact with the respired gases, it discharges carbonic acid in abundance. Davy's views are, therefore, scarcely reconcileable with the result of our experiments; it would be easier to reconcile them if he had not assumed the pre-existence of free carbonic acid in the venous blood, but had attributed the formation of all the carbonic acid developed during respiration to the direct combination of the oxygen of the air with the carbon of the blood. It seems also improbable that the blood should first absorb all the nitrogen of the air, and should then at once exhale the greater part of it.

Lagrange, like Davy, supposed that the air came into immediate contact with the blood, by means of penetrating the parietes of the vessels, but according to him the oxygen of the air does not directly form carbonic acid, for he argues that it is first loosely combined with the blood, and arriving along with that fluid in the various tissues of the bodies, is by their action, perhaps now for the first time, intimately combined with carbon, and consequently, is returned by the veins in the form of carbonic acid, which is exhaled in the lungs during the act of respiration, and replaced by a fresh supply of oxygen. This theory has, it is true, many advantages over the former, and particularly, it may be applied to explain the equable developement of animal heat in the various tissues, and the necessity which exists of a continual supply of arterial blood for the purpose of supporting the vital functions of each part. It is, however, entirely irreconcilable with the facts observed in our experiments; for the carbonic acid which it supposes to be exhaled from the venous blood, on mere contact with the atmosphere in the lungs, must *a fortiori* be evolved when the atmospheric pressure is removed. This theory also infers, the existence of some free carbonic acid in arterial blood, for it is well known, that where a fluid containing free carbonic acid is exposed to air, it does not part with all its carbonic acid. Also, as according to this theory the oxygen exists in arterial blood in the same loose state of combination in which it is found in fluids, that absorb it from the atmosphere, the detection of the oxygen by means of the air pump ought to be easily effected. Now, as by this means we can neither detect carbonic acid or oxygen in arterial blood, strong doubts of course are thrown upon the theory of Lagrange. We may now be permitted to bring forward some fragments of a theory, which seems capable of explaining all the facts hitherto ascertained in a more satisfactory manner. If the view be adopted, that all or most of the animal principles composing the secretions are not actually formed by the secreting organs, but are merely eliminated from the blood, it is obvious, that these principles must either have existed ready formed in the food, or that they must have been formed indirectly by means of vital action out of the chemical elements contained in the food.

This operation of changing unorganized chemical elements into

animal principles, is effected not merely in the digestive organs, but in the lungs. Thus, most organized fluids, when exposed to the air, imbibe oxygen, and form acetic or lactic acid. The formation of these acids is favoured by a certain elevation of temperature, as in the case of milk exposed to the air. Now, in the blood, and in most of the secretions, acetic and lactic acids exist partly free, partly combined with alkalies. As these acids are excreted from the body in the sweat and urine, in much greater quantities than they exist in our ordinary food, we are justified in concluding, that they are manufactured within the body itself, and most probably in the lungs, in which all the requisites for the formation of acetic acid are united, namely, an abundant contact with air, and an elevated temperature.

The experiments detailed above had acquainted us with the fact, that neither venous or arterial blood possesses any free carbonic acid, although they contain carbonic acid combined with alkalies. *Assuming the truth of the hypothesis we have advanced, that acetic acid is formed during the process of respiration, it necessarily follows, that venous blood ought to contain a greater quantity of carbonated alkali than arterial blood*, for it is obvious that a certain portion of the carbonate in the venous blood must be decomposed by the nascent acetic acid, and acetates formed at the same time that carbonic acid is liberated. The experiment already related seemed to indicate this result, but we nevertheless deemed more accurate investigations necessary, and accordingly we instituted the following experiment:—

By means of the apparatus already described, we received in glass vessels 48 grammes of venous and 152 grammes of arterial blood drawn from a healthy dog. We immediately added to each one-third of freshly-made concentrated acetic acid, and formed a connexion by means of a tube between each vessel, and one containing water of barytes, protected by proper precautions from communication with the external air. The vessels were first gradually heated in the water bath, in which they were finally immersed up to their necks; their contents became gradually thicker, and rose in the vessels, while the bubbles which slowly formed in it, caused a copious precipitation of the barytes.

After eight hours' exposure to the heat of the water bath, as scarcely any more carbonic was evolved, we discontinued the experiment, and immediately proceeded to collect and weigh the carbonate of barytes. That obtained from the venous blood weighed, after exposure to a red heat, 0.264 (gramme,) and that from the arterial 0.566. From this it appears that 10,000 parts of venous blood contain at least 12.3 of carbonic acid, and 10,000 of arterial blood 8.3; in the example before us, therefore, the proportion of carbonic acid in the venous, was to that in the arterial blood nearly as three to two.

This experiment consequently is very favourable to the hypothesis advanced above, inasmuch as it appears that one-third of the carbonated alkalies contained in venous blood is decomposed during the

aeration of the blood in the lungs, the carbonic acid being displaced by the acetic acid generated during respiration. Further experiments, in corroboration of that above detailed, are desirable.

The facts and arguments we have brought forward lead to the following conclusions :

1st. The inspired air penetrates the moist parietes of the air cells, and comes into direct contact with the blood.

2nd. As the nitrogen of the inspired air is not absorbed in any considerable quantity by the blood, a very small quantity of it only disappears, being absorbed by the fluid which moistens the air cells. As the oxygen, on the other hand, is absorbed abundantly by the blood, it passes through the parietes of the air cells in a stream sufficient to supply that absorption. This is the reason why the residual air in the air cells contains a larger proportion of nitrogen and a smaller proportion of oxygen than atmospheric air.

3rd. The oxygen which the blood thus attracts to itself is expended in various ways, part of it being united to carbon and hydrogen, forms carbonic acid and water, and in this shape is exhaled with the expired air, while the remainder forms a direct combination with the animal principles of the blood itself. By both of these means are effected changes in the proportions of the elements of which the animal principles of the blood are composed, and in consequence of these changes those principles are converted into others of a lower order ; acetic and lactic acids are among the principles of a lower order, thus formed, and which, decomposing the carbonate of soda contained in the blood, sets free the carbonic acid which is exhaled into the air cells.

4th. The acetate of soda thus formed in the lungs, loses its acetic acid in various secreting organs, but principally in the kidneys and skin ; and again, absorbing carbonic acid, (which is formed during the circulation of the blood through the rest of the body in consequence a still further decomposition of its organic principles,) arrives again at the lungs in the form of carbonate of soda.

By means of this theory, we easily explain why the blood evolves no carbonic acid on the removal of the atmospheric pressure, for we are not entitled to assume the existence of free carbonic acid in the blood. It seems, however, more difficult to explain why arterial blood conducts itself in a similar manner, for if, according to this theory, carbonic acid is partly generated directly by means of the inspired air, and partly evolved in a free state in consequence of the newly formed acetic acid uniting itself to the alkali, we must, in consequence of what we know of the laws that regulate the absorption of gases, conclude, that a certain portion of this carbonic acid must be retained by the blood, while the remainder is exhaled by that fluid into the air cells. The proportion between the carbonic acid exhaled and that retained in the blood will be regulated by several circumstances, such as the capacity for absorbing that gas which the blood possesses, the proportion of the various gases constituting the contents of the air cells, and the degree of temperature. Moreover,

it must be borne in mind, as we have already observed, that of the blood which flows in a perpetual stream through the lungs, a part only has an opportunity of reacting on the air, and consequently this part alone contains any free carbonic acid, and this part being intimately mixed with the remainder of the blood, which contains a simple carbonated alkali, immediately loses its free carbonic acid, in consequence of its union with the salt to form a portion of bicarbonate, which will not exhale its carbonic acid when the atmospheric pressure is removed.

Further investigations are required to establish this theory, and to remove several objections which may be still urged against it.

II. *Can Urea be detected in the Blood after Extirpation of the Kidnies?*—The well-known experiment made by Prevost and Dumas* is of such great and paramount importance, and bears so directly on the theory of secretion, that we deemed it right to submit the matter to a new series of investigations, notwithstanding that Vauquelin and Ségalas had confirmed the announced results.

On the 14th January, 1832, at eleven o'clock, A. M., we undertook the extirpation of the right kidney in a healthy dog, and effected it without any accident, having secured the vessels and tied the ureter, which was then divided; for the first few days after the operation the animal got nothing but milk and water, which it lapped greedily. In about thirty hours, and not until then, the dog voided both excrement and urine in considerable abundance. The wound supplicated favourably, and was completely healed in a fortnight, at which period the dog passed urine and fæces as usual, and seemed as healthy as before the operation.

On the 11th February, at eleven o'clock, A. M., we proceeded to the extirpation of the left kidney. The temperature of the animal's mouth was thirty-eight degrees of Celsius' thermometer. When the kidney was exposed and taken out of its capsule, it appeared extremely vascular, and was at least one-third larger than the previously excised right kidney. This was no doubt produced by the additional duties of function it had been called on to discharge. In the afternoon, at two o'clock, the poor animal was found lying down, and had not even tasted the milk and water in the bowl near him. The motions of the heart were increased in frequency, and the nose was dry and warm; the temperature of the mouth was $38\frac{1}{2}$. During the night he vomited a fluid tinged with bile, and passed some loose excrements of a greenish-yellow colour. He had taken a little milk and water. On the 12th the animal appeared very dejected, and vomited several times a watery fluid mixed with a dirty brown slime, in which were detected two joints of a tape worm. The vomiting and retching continued until the morning of the 13th, when the ani-

* Journal de Physique. Annales de Chimie et Physique.

mal was very dejected, feeble, dull, and was often attacked by violent rigors. The temperature of the body began to sink, the motions of the heart became slower and feebler, respiration irregular, and the animal died about nine o'clock, A. M.

The peritoneum was found inflamed and containing some puriform fluid; the vessels of the stomach and bowels were tinged with blood, and the mucous membrane of the stomach appeared inflamed and besmeared with mucus tinged yellow with bile. The liver was uncommonly vascular, and seemed rather softer and more easily broken with the fingers than usual. The gall bladder was tinged and distended with green bile. The inside of the bowels contained a fluid mixed with bile and mucus. The right side of the heart, particularly the auricle, were distended with black coagulated blood. The lungs and spleen were natural. In the ventricles of the brain more fluid was found than natural. The blood and other fluids were collected for the purpose of trying whether they contained any urea. The following were submitted to experiment:—1st. The fluid that had been vomited; 2nd. Two ounces of blood collected from the larger vessels after death; 3rd. The bile; 4th. The contents of the small intestines; 5th. The excrement. Each of these was carefully dried on a vapour bath, and then treated with hot water. The filtered fluid was precipitated with acetate of lead, and again filtered. The fluids so obtained were freed from the lead partly by means of carbonate of ammonia, partly by means of sulphuretted hydrogen.

Numbers 1, 2, and 3, were precipitated with carbonate of ammonia, and the fluid, filtered and evaporated to dryness, was treated with absolute alcohol, and the residue which this alcoholic solution left on being evaporated, was dissolved in a little water. This watery solution was freed from some minute flakes by filtering, and was then placed in a glass tube surrounded by ice, to which a few drops of concentrated nitric acid were added in the slowest possible manner, and with the greatest caution, so as to avoid the sudden disengagement of heat. Numbers 4 and 5 were precipitated by means of sulphuretted hydrogen, and were treated in other respects in the manner just detailed.

Our results were as follow:—The fluid obtained from the blood gave, with a few drops of nitric acid, a copious yellowish-white crystallized precipitate, which, in twenty-four hours amounted to one-half the bulk of the mixture. In order to examine this more accurately, it was collected on a small filter, washed with a little cold water, squeezed and dried. A part of this precipitate was then placed in a platina spoon and heated. It was converted into a carbonized residuum, very small in quantity, and which quickly disappeared on continuance of the heat. Another part was gently warmed with a solution of potash, and did not exhibit the least development of ammonia. The third and largest portion was heated with water and carbonate of barytes, and then the mixture was precipitated by adding a large quantity of absolute alcohol, after which it was filtered. The filtered fluid was not clouded by adding sulphuric acid, and al-

lowed to evaporate spontaneously, afforded long, colourless, needle-like crystals, which were found to possess all the chemical properties of urea. The presence of urea was recognized also in the fluid, which had been vomited, but in much smaller proportions; but no trace of urea could be detected in the bile, in the excrement, or in the contents of the small intestines.

The quantity of urea we obtained from the blood, was less in proportion than that obtained by Prevost and Dumas, a circumstance explicable by the shorter time the dog we experimented on survived the extirpation of the kidneys.

III. *Experiments to determine whether Urea can be detected in healthy Blood.*—The results obtained by Prevost and Dumas are extremely favourable to the hypothesis, that the secreting organs do not form new principles from elements carried to them in the blood, but merely separate from that fluid, elements already present in it. Some of these organs being calculated chiefly to eliminate one principle or one set of principles, and some another. It may, however, be alleged that their results are also explicable by means of the hypothesis, that glands actually form these principles: for, however improbable it appears, still we may suppose that when the kidneys are removed, other secreting organs assume a vicarious action, and (like the kidney) commence the production of urea from the elements contained in the blood. The urea once formed in the secretions, may be easily reabsorbed, and thus appear in the blood. This hypothesis can have no foundation unless we can prove the existence of urea and other products of secretion in healthy blood. It must, on the other hand, be allowed, that the mere circumstance of not detecting certain substances in the blood, is not in all cases a certain proof of the falsehood of this hypothesis, for it appears probable from the experiments of Vauquelin and Ségalas, that several substances, of which urea may perhaps be one, are separated with such rapidity and so perfectly from the blood on its arrival at the secreting organs, that it is almost impossible to detect what remains of these substances in the mass of the circulating fluid, where they are marked by the presence of other animal principles, which render their detection, when present in very minute quantities, most difficult if not impossible.

As several animal principles, hitherto believed to be mere products of secretion, have of late been detected in the blood itself, (e. g. osmazome, salivary matter, caseous matter, fat of bile, fat, oil, &c.) we may still look forward to the discovery of more principles, some of them perhaps of importance, common to both the blood and certain secretions. In this hope we instituted the following experiments, for the sake of determining whether urea and sugar of milk can be detected in the blood.

Our first step was to try whether very small quantities of these substances could be detected when they were added to the blood.

The result of this investigation proved that it is easy to detect urea in blood when present in the proportion of $\frac{1}{536}$, and of sugar

of milk when in that of $\frac{1}{100}$, even when the operation is conducted on the small scale. We hoped, therefore, by acting on large quantities of blood, to be able to detect these substances were they present in even much smaller quantities than those above specified. We therefore commenced with ten pounds of fresh cow's blood, but were not able to detect, after the most careful investigations, the smallest trace of either urea or sugar of milk.*

On the Influence of Colour on Odours, by Dr. Stark.—My first experiments on odours, made some years ago, were with articles submitted to the action of odorous substances, by being inclosed with them in drawers or boxes for a certain period, and the amount of attraction ascertained by the intensity of smell. In all these experiments, however, reliance had to be placed upon one sense alone, viz. that of smell, as none of the substances employed had gained any appreciable weight. I was therefore desirous that, if possible, at least one experiment should be devised, which would show, by actual increase of weight, that one colour invariably attracted more of any odorous substance than an other; and upon considering the various odorous substances which could be easily volatilized without change, and whose odour was inseparable from the substance, I fixed upon camphor as the one best suited to my purpose. In an experiment of this nature, it was necessary that the camphor should be volatilized or converted into vapour, and that the coloured substance should be so placed as to come in contact with the camphor while in that state. It was therefore of the first importance to prevent currents of air within the vessel in which the experiment was conducted, and with this view I used a funnel-shaped vessel of tin-plate, open at top and bottom. This rested on a plate of sheet iron, in the centre of which the camphor to be volatilized was placed. The coloured substances, after being accurately weighed, were then supported on a bent wire, and introduced through the upper aperture. This was then covered over with a plate of glass. Heat was now applied gently to volatilize the camphor; and when the heat was withdrawn, and the apparatus cool, the coloured substances were again accurately weighed, and the difference in weight noted down.

Proceeding on this plan, I arrived at the most satisfactory and conclusive results. The deposition of the camphor in various proportions on the coloured substances submitted to experiment, offered evidence of the particular attraction of colour for odours, resting on ocular demonstration; and when to this is added a positive increase of weight as ascertained by the balance, the conclusions previously drawn from the sense of smell are confirmed in a singular and very satisfactory manner. I have in this mode repeated all the former

* As the results of this series of experiments are merely negative, the particular process employed has not been embodied in the translation.—ROBERT J. GRAVES.

experiments with differently coloured substances; but shall here only detail a few, as sufficient to show the general results:—

1. I took ten grains of *white* and the same quantity of *black* wool, and having suspended them in the manner stated, vaporized the camphor. When the apparatus cooled, I found, on weighing the wool, that the *white* had gained $1\frac{5}{10}$ grains in weight, and the *black* $1\frac{5}{10}$ grains.

2. In a similar experiment, but using three colours of wool, *white*, *red*, and *black*, I found the *white* wool had gained $\frac{1}{10}$ of a grain; the *red* $\frac{8}{10}$; and the *black* $1\frac{4}{10}$ grains.

4. In another, where the heat was applied for about ten seconds, the *white* had gained no appreciable weight, and but little smell; the *red* had gained $\frac{1}{10}$ of a grain; while the *black* had acquired $\frac{2}{10}$ of a grain.

4. In an experiment with *black*, *red*, *green*, and *white*, the results were:—

<i>Black</i> gained in weight $\frac{3}{10}$ of a grain.		
<i>Green</i>	-	$\frac{2.5}{10}$
<i>Red</i>	-	$\frac{2}{10}$
<i>White</i>	-	$\frac{1}{10}$

5. In an experiment with *black*, *blue*, *green*, *red*, and *white*, 10 grains of each, the result stood thus:—

<i>Black</i> gained in weight $1\frac{2}{10}$ of a grain.		
<i>Dark Blue</i>	-	$1\frac{1}{10}$
<i>Scarlet Red</i>	-	1
<i>Dark Green</i>	-	1
<i>White</i>	-	$0\frac{7}{10}$

In repeating this experiment the *dark green* was $\frac{7}{10}$, while the *red* was only $\frac{6}{10}$; the others in the order as before.

I now varied the experiment by employing square pieces of card of equal size, coloured with different preparations of lead. This was done with the view of ascertaining whether smooth surfaces of equal density, and coloured as nearly as possible with a pigment of the same nature, would absorb odorous particles with the same facility as loose portions of wool. The colours were mixed up with a solution of gum-arabic, and laid on the cards as equally as possible with a camel-hair pencil.

6. Pieces of card of equal size being coloured, as mentioned, with various preparations of lead, viz. *red*, *brown*, *yellow*, and *white*, and previously weighed, were exposed to the vapour of camphor in the vessel before described. After exposure for some time, and when cool, it appeared on weighing, that the

<i>Red</i> had gained	-	1 grain in weight.
<i>Brown</i>	-	$\frac{9}{10}$ of a grain.
<i>Yellow</i>	-	$\frac{5}{10}$
<i>White</i>	-	a trace.

The whole of the upper surfaces of the *red*, *brown*, and *yellow* cards were covered with a fine light downy deposit of camphor. The *white* had an extremely fine deposit on its surface, but inappreciable by a very fine balance.

7. Another experiment with cards coloured *black*, *red*, *brown*, *yellow*, and *white*, exposed to the vapour of camphor, gave the following results :

<i>Black</i>	had gained	1 grain.
<i>Red</i>	- - -	$\frac{9}{10}$ of a grain.
<i>Brown</i>	- - -	$\frac{7}{10}$
<i>Yellow</i>	- - -	$\frac{5}{10}$
<i>White</i>	- - -	$\frac{4}{10}$

8. In a similar experiment with cards coloured *black*, *dark blue*, *dark brown*, *orange-red*, and *white*, the attractive powers were as follow :

<i>Black</i>	gained	-	$\frac{9}{10}$ of a grain.
<i>Dark blue</i>	-	-	$\frac{8}{10}$
<i>Dark brown</i>	-	-	$\frac{4}{10}$
<i>Orange-red</i>	-	-	$\frac{3}{10}$
<i>White</i>	-	-	$\frac{1}{10}$

In all these experiments, it was invariably found that the *black* attracted most, the *blue* next ; then followed the *green* and *red* ; after these the *yellow* and *white*. The heat was never continued so long as to warm the apparatus, else the whole camphor would have been driven off. Neither was such a quantity of camphor used as would have given a thick coating to the substances employed, as then the attraction of the coloured surfaces might have been diminished.

1. The next set of experiments were intended to ascertain the comparative attraction of animal and vegetable substances. The first of these were upon equal weights of black wool and black silk, ten grains of each exposed to the vapour of camphor in the manner already stated. The *black wool* gained $1\frac{5}{10}$ grains, the *black silk* $1\frac{7}{10}$ grains. From this experiment, it would appear, that of these two animal substances, *silk* possesses the greater attraction for odours.

2. In equal weights of *white wool* and *white cotton*, the *cotton* gained $\frac{3}{10}$ of a grain ; the *wool* $\frac{4}{10}$.

3. In another experiment with *white silk*, *white wool*, and *white cotton*, ten grains of each, the result was,

<i>Silk</i>	had gained	-	$3\frac{5}{10}$ grains in weight.
<i>Wool</i>	-	-	$2\frac{4}{10}$
<i>Cotton</i>	-	-	$2\frac{2}{10}$

4. In a similar experiment, with the usual weights of the same articles,

<i>Silk</i> had gained	-	$1\frac{4}{10}$ grains in weight.
<i>Wool</i>	-	$\frac{5}{10}$ of a grain.
<i>Cotton</i>	-	$\frac{4}{10}$

5. Another experiment, in which *black silk*, *black wool*, and *black cotton*, were exposed in equal quantities of the usual weight to the vapour of camphor, as before described, gave this result.

<i>Black silk</i> gained	$\frac{9}{10}$ of a grain.
<i>Black wool</i>	- $\frac{1}{10}$
<i>Black cotton</i>	- $\frac{1}{20}$

6. In an experiment with *white silk*, *white wool*, *white cotton*, and *white card*, each weighing ten grains, and exhibited as before, the following were the results :

<i>White silk</i> had gained	$1\frac{9}{10}$ grains in weight.
<i>White wool</i>	- $1\frac{1}{10}$
<i>White cotton</i>	- 1
<i>White card</i>	- $\frac{4}{10}$ of a grain.

These last experiments tend to shew, that different substances attract odours in different proportions, and this independent of the texture or fineness of the substance employed. Wool, though generally coarser in the fibre than cotton, has yet a greater attraction for odours ; and silk more than wool. The general conclusion would appear to be, that animal substances have a greater attraction for odours than vegetable matters ; and that all these have their power much increased by their greater darkness or intensity of colour. These experiments seem also to establish, that the absorption of odours by coloured substances is regulated by the same law which governs the absorption of light and heat. The analogy goes still farther, for in other experiments which I made with a view to ascertain this point, I invariably found, that the power of colour in radiating or giving out odours, was in strict relation to the radiation of heat in the same circumstances. My first experiments in this branch were with differently coloured wools, inclosed for a certain time in a drawer along with assafœtida and camphor, and afterwards exposed for a specific period to the action of the air. Though one can easily judge by the sense of smell alone the different intensities which these articles have acquired immediately on being taken out of the drawer, yet, after exposure for some time to the air, the difference of intensity is much more difficult to be perceived. In general, it seemed to me that the whole of the substances lost their sensible odour in nearly the same space of time, though the odorous particles given out by the black were, of course, much greater in quantity than in the others. To demonstrate this, I took pieces of card, coloured as before, *black*, *dark blue*, *brown*, *orange-red*, and *white*, and, after having exposed them to the vapour of camphor, in the usual manner, they were taken out of the vessel, weighed, and exposed in the apart-

ment for twenty-four hours. Upon carefully weighing the cards at the end of this period, it was found that the *black* had lost one grain; the *blue* nearly as much; the *brown* $\frac{9}{10}$ of a grain; the *red* $\frac{8}{10}$; and the *white* $\frac{5}{10}$. In about six hours afterwards, the *black* and *blue* had completely lost their camphor; the *brown* and *red* had the merest trace, inappreciable by a delicate balance; while the *white* still retained about $\frac{1}{10}$ of a grain.

In another experiment with cards coloured *dark blue*, *dark brown*, *orange-red*, *yellow*, and *white*, they had gained in weight, after exposure to the vapour of camphor,

<i>Dark blue</i>	-	-	$\frac{9}{10}$ of a grain.
<i>Dark brown</i>	-	-	$\frac{8}{10}$
<i>Orange-red</i>	-	-	$\frac{6}{10}$
<i>Yellow</i>	-	-	$\frac{5}{10}$
<i>White</i>	-	-	$\frac{4}{10}$

After lying in the apartment for twenty-four hours, the cards were again carefully weighed, when the camphor remaining was found to be, in the

<i>Dark blue</i>	-	-	$\frac{1}{10}$ of a grain.
<i>Dark brown</i>	-	-	$\frac{1}{10}$
<i>Orange-red</i>	-	-	$\frac{2}{10}$
<i>Yellow</i>	-	-	$\frac{1}{10}$
<i>White</i>	-	-	$\frac{3}{10}$

Hence in the same space of time the loss in each was blue $\frac{2}{10}$; brown $\frac{3}{10}$; red $\frac{2}{10}$; yellow $\frac{1}{10}$; white $\frac{3}{10}$.

The influence of coloured surfaces upon the absorption and emission of odours, having, I trust, been satisfactorily shewn, it only remains to state shortly some of the practical conclusions which may be drawn from the experiments detailed.

If it be thus certain that odorous emanations have not only a particular affinity for different substances, but that the colour of these substances materially affects their absorbing or radiating quality, the knowledge of these facts may afford useful hints for the preservation of the general health during the prevalence of contagious diseases. From their minute division and vast range of action, latent poisonous exhalations or effluvia, inappreciable by the balance, may no doubt exist to a dangerous extent, without being evident to the sense of smell. But in most cases it will be found, that, when contagious diseases prevail to such extent, the emanations from the sick will, if attended to, give the surest indications of the contamination of the surrounding air. Besides, even if we allow that infectious emanations have no necessary connexion with odours, the preceding experiments will afford the strongest possible presumption, that the emanations of an infectious nature, in common with odours, vapours, and emanations generally, are emitted on the one hand, and on the other received, according to the same general laws.

Experience has sufficiently proved, that emanations once gene-

rated in, or communicated to, the human body, may be conveyed from one individual to another, and even, through the medium of clothing or merchandize, from one place to another. This has been particularly observed in plague; and hence in countries where this disease is liable to occur or be imported, the institution of quarantine establishments, to prevent personal intercourse or the dispersion of goods, till a certain number of days have elapsed, during which the disease, if existing, should appear;—articles of merchandize and clothing being at the same time purified by exposure to the air, or fumigated. Though this transport of disease has been more particularly observed in plague, yet instances of the same nature have occurred in other diseases, more particularly small-pox, and more recently it has by many been supposed in cholera.

It is unnecessary to detail the means of purifying infected goods, or fumigating the apartments of those who have been known or suspected to labour under diseases supposed to be communicated by contagious effluvia. It is sufficient to state, that exposure to a high temperature, fumigation with chlorine and sulphur, and free exposure to the air, are found amply sufficient for the first; and apartments are more generally recommended to be purified with chlorine, and washed with caustic lime. As to fumigations with chlorine, it cannot be denied that this will destroy the effluvia floating in the air exposed to its action; but unless this fumigation be frequently repeated, it can have but little effect, as the walls and furniture will be constantly contaminating the air, by giving out the deleterious particles which they had previously absorbed. Lime washing has generally been supposed to act in the same manner as fumigations, viz. by destroying the contagious emanations; but from the experiments of Guyton Morveau, it would seem that caustic lime, and indeed lime in any state, has no such effect. It merely absorbs the gases which disguise the odour, but neither changes its deleterious properties nor alters its real smell. He, therefore, disregards lime-washing, except as a general mode of cleaning walls, and attributes no other beneficial effect to it than as contributing to cleanliness.

The result of my investigations has led me to form a very different opinion. It is to white-washing that I should attribute much of the good effects that have been found to follow the purifying means generally employed. In such cases I should trust more to white-washing the walls, personal cleanliness, and free ventilation, for destroying or diminishing the effects of supposed pestilential or hurtful effluvia, than any other measures. Acid and other fumigations, except chlorine, only disguise, but do not destroy, the property of animal effluvia to produce disease.

In the late epidemic cholera here, it is well known that this disease broke out in the village of the Water-of-Leith, situate a little to the north-west of Edinburgh, and lying on both sides of the stream that name. Many of the inhabitants were seized with the disease, and fell victims to its severity. If a damp and low situation, with unadulterated filth of all kinds, render disease more fatal, this was

certainly a place likely to suffer severely, and at first it did so. But the Board of Health, with that promptitude for which they were distinguished, quickly got all the filth, so far as practicable, removed, the houses fumigated, and the walls white-washed outside and inside. By these means the disease seemed at once to be arrested, its virulence was much abated, and it gradually declined. The fumigations in this case could only act upon the deleterious emanations in the air at the time; but unless constantly renewed, could not affect the fresh emanations generated from those labouring under the disease. The necessary ventilation must also have speedily carried off the chlorine. In white-washing, on the other hand, although it had no specific influence upon the contagious effluvium, yet, by constantly presenting a reflecting surface, prevented the absorption of the emanations by the walls, and thus tended, with moderate ventilation, to keep the air of the apartment pure. Dirty-coloured walls, on the contrary, would readily, as has been demonstrated, absorb the noxious odours, and as soon as the effect of the fumigation was over, gradually give them out again.

The good effects of white-washing appeared strikingly in another instance at this particular time; for I venture to assert, that if human means had any influence on this disease, Edinburgh owes much of the mildness of its attack to the white-washing of its steep and narrow lanes and closes, the walls of the common-stairs, and most of the hovels inhabited by the lowest classes of the community,—not to the partial fumigations and sprinklings with chloride of lime, which the first breath of wind carried off. The white-washing of the walls prevented them from absorbing the deleterious emanations, and the currents of air were thus enabled to sweep them away, before they had accumulated to such a degree as to become an active source of disease.

Next, therefore, to keeping the walls of hospitals, prisons, or apartments occupied by a number of individuals, of a *white* colour, I should suggest that the bedsteads, tables, seats, &c. should be painted white, and that the dresses of the nurses and hospital attendants should be of a light colour. A regulation of this kind would possess the double advantage of enabling cleanliness to be enforced, at the same time that it presented the least absorbent surface to the emanations of disease.

On the same principle it would appear that physicians and others by dressing in *black*, have unluckily chosen the colour of all others most absorbent of odorous and other exhalations, and of course the most dangerous to themselves and patients. Facts have been mentioned which make it next to certain, that contagious diseases may be communicated to a third person through the medium of one who has been exposed to contagion, but himself not affected*; and in fact

* See Treatise on the Epidemic Puerperal Fever of Aberdeen, by Alexander Gordon, M. D. Lond. 1795, pp. 63, 4.

the circumstance of infectious effluvia being capable of being carried by medical men from one patient to another, I should conceive one of the means by which such diseases are propagated in the ill-ventilated and dirty habitations of the poor exposed to their influence.

Even in my own very limited experience, I think I have observed some melancholy instances of the effect of *black dress* in absorbing the hurtful emanations of fever patients in a public hospital; and many facts are incidentally noticed by medical writers and referred to other causes, which I should not hesitate to ascribe chiefly to exposure of this nature. Not to mention individual cases, in the sessions held at Oxford in July, 1577, "there arose amidst the people such a damp that almost all were smothered." Lord Bacon attributes this effect to the smell of the jail, where the prisoners had been close and nastily kept; and mentions it having occurred twice or thrice in his time, "when both the judges that sat upon jail, and numbers of those who attended the business, or were present, sickened and died."* A similar occurrence related by Sir John Pringle, happened at the Old Bailey sessions in 1750, when four of the judges were attacked and died, together with two others of the counsel, one of the under sheriffs, several of the jury and others, to the amount of about forty in the whole. My explanations of the peculiar fatality of these emanations to the judges, counsel, and jurors, was the peculiar attraction of their official black for the putrid effluvium, as Sir John calls it; and the escape of two of the judges who sat on one side of the Lord Mayor, to the current of air that was in the room not sending the baneful odours in their direction.—*Edinburgh New Philosophical Journal*, April, 1834.

NATURAL HISTORY.

Influence of Vegetation on Malaria.†—An English naturalist, Dr. Mac Culloch, maintains that plants, and also water, give out the malaria as a peculiar poison; and that this matter can be transported, and consequently that the sickness it causes may be produced in districts where there are no plants, or where, after the harvest, there is only stubble remaining. If, in considering this sub-

* Pringle's Observations on Diseases of the Army, p. 296.

† The guide books for Italy carefully point out suspected districts, and enjoin travellers to drive rapidly through them, and not even to close an eye, and much less to sleep, in them. The clamour upon this subject is still greater near such places, but it has its origin chiefly in the interested motives of innkeepers. The Neapolitan scientific men gave me whole lists of suspected places, all which, however, lie near the great roads. About districts in the interior I could learn nothing; and I was unable to obtain more minute or solid information upon the subject, although I gave myself much trouble for this purpose.

ject, we place together the marsh fever and the real malaria, we find that all the assertions made regarding them turn upon this view, that putrid marshes render impure the air which previously did not contain the contagious poisonous ingredient which produces these diseases. As for several centuries the malaria has actually prevailed to a great extent in Rome during the summer season, and as, in latter periods, quinine has been employed as a remedy, the quantity of that medicine consumed has been taken into consideration, and the conclusion has been drawn that Rome is becoming more marshy every year. Those who saw the absurdity of this opinion, for there is no district more dry than that of Rome, had recourse to the Pontine marshes. But as it was opposed to this view of the subject, that these marshes are two days' journey from Rome, and that several healthy towns and a ridge of hills intervene, it was found necessary to maintain that the malaria reached its destination by a circuitous route; then it was thought that the Tiber, by the diminution of its waters caused by the heats of summer, must become impure, which, however, is by no means the case. The idea of forming another bed for the Tiber, had no other ground than that which has been so often renewed since the time of Cæsar, to conduct it through the Pontine marshes, and so to remove it to a distance. The opinion has now become prevalent, that the best remedy for the evil is the growth of plants.

Whether the Pontine marshes had their origin after the time of Tarquinius Superbus, by the sinking of the land and destruction of the twenty-three towns caused by an earthquake, is of no consequence for our purpose. The attempts at improvement made by Appius Claudius, Julius Cæsar, Augustus, and Trajan, afford no important facts. When Decius, under the Gothic viceroy Theodoric, undertook the draining, many workmen became ill and died, so that it was found necessary to give up the work several times. The same happened under Pius the Fifth, in 1585.

When, in the midst of the difficulties which oppressed his territories, Pius the Sixth began the work with the greatest vigour, new epidemic disorders broke out amongst the labourers. Many died speedily, and others recovered as rapidly. A large part of the district was drained, and in this respect there was cause for triumph. Pius founded there a considerable colony, with a parish church and a capuchin manastery. Of these marsh diseases, no further trace shewed itself; but, on the other hand, the real malaria appeared when the ground was thoroughly drained. Many of the colonists and capuchins gradually became pale, almost lost the power of speech, acquired a corpse-like aspect, and at length died. Thus the whole colony was in a short period destroyed. The handsome church has been converted into the hay magazine of the present post-house. When the crops are cut, the proprietor of the post-house and his family remove to a more healthy situation; and, paying high wages, give the establishment in charge to their servants, of whom some always fall a sacrifice to the malaria. I saw two such individuals; I

took the cook with me in my carriage to Rome, where he found aid in the hospital. He had not been at all aware that the disease had seized him, and remained nearly two years in service, until his voice became as weak as that of a child, and he was seized with a cough, accompanied by symptoms of great debility, under which in all probability he sunk. On the other hand, several houses stand in the middle of the marsh; and I learned that the real malaria had never appeared amongst the people who inhabited them, but that violent fevers are of frequent occurrence.

It is well known that marshy districts, abounding in putrid water, are very unhealthy, and that in these intermitting fevers become epidemic; so that the ships from Manfredonia, and some other places on the Adriatic Sea, are obliged to serve quarantine on arriving at other ports. I saw marshy districts of this description at Basiento; in the province of Otranto; at Crati; near Mastro, Catania, Lentini, Agosta, &c. The real malaria tracts of country are characterized by entirely different features. In the year 1669, four villages were overflowed by the lava which issued from the eruption of the M. Rossi on Etna. The inhabitants built a new village on a beautiful height between Paterno and Motta. To the east and south basalt may be observed, and to the north we meet with the old seas of lava of Etna; but the chief rock is a vesicular basaltic tuffa. The village was called Castellino, and is now entirely deserted; and the houses appear as if they had suffered from fire. Though excessively dry, the district abounds in rich fields of corn. At a greater distance round this remarkable elevated point, there is no marsh or other similar collection of water. The first year the malaria showed itself after the harvest, and under its influence the whole colony suffered; so that at last not an individual lived on the spot, while the neighbourhood was abundantly inhabited. Notwithstanding this, however, a few years ago, a rich inhabitant of Palermo built in that very district some farm-houses, and a beautiful country house. The farmers unfortunately heard the fate of the colony, and again every thing was deserted, and the wood of the houses carried away. One of the least moist districts is that round the village of Florida, which lies on an extensive platform composed of basaltic tuffa, and like all other malaria tracts, is characterized by the absence of vegetation. Soon after leaving Syracuse no more trees are to be seen. In the long narrow limestone valley bushes are to be met with, but when the height is reached all vegetation disappears after the harvest; there is nothing but dried up corn fields, in which nothing thrives amongst the stubble. The village, which contains the only houses of the district, is visible at a distance of fifty Italian miles; but in the upper and more beautiful part of it all the houses, and in the remainder many of them, were deserted. When the harvest is over, the richer part of the population remove, and again take possession of their property in autumn. As I several times wandered through the village, I saw a number of children from five to twelve years old creeping about, or lying, corpse-like, in the burning rays of the sun. Amongst

the grown up there are fewer who are attacked by malaria; but still, at church, I saw a considerable number. Those who have passed their fourteenth year are less liable to disease; but many are seized by it, and especially, as is asserted, every newly arrived stranger. At the inn there were three children and a person advanced in life, who had been ill for several years, and were apparently near dissolution. I saw several similar districts in Sicily, and particularly between Caltanisella and Sulera, in the centre of the country. In Calabria, Cosenza is especially notorious, and is deserted in summer by nearly all the respectable inhabitants; and it was there where I saw the fear for the disease carried to the greatest extent. Neapolitans and foreigners ascribe the malaria to the marshy districts; and yet Cosenza is a very dry place. There are certainly two rivulets which unite below the town, but these run exceedingly rapidly over the pebbles. It is only at a distance of many miles, and again where Crati approaches the ancient Sibaris, that the ground becomes marshy, but still not to such an extent as to produce fevers. Besides, malaria does not exist in a single place in this valley of seventy miles in length, except at Cosenza, its highest point. To the west of Cosenza there are conical hills of granite and gneiss; to the south, there are extensive strata of sandstone, under which appear fragments of limestone beds, and traces of basaltic tuffa and mud-like masses; to the east, there are traces of old mud volcanos, and tuffaceous tower-shaped masses; and to the north begins the highest part of the valley, which descends for two days' journey, and then terminates near ancient Sibaris. The valley of the Negro presents similar features; the river flows into the Silaro, and in the lower region renders marshy the district of Palla, and makes that of Basizza so noxious, while in the highest and driest part, at the source of the river, and farther down on a hill at La Palla, the malaria appears. When in the province Basilicata, we advance from Molitano to the river district of Agri, we meet with large gypsum craters, and more towards the Tarentine sea, white marly mud-like masses, which, near Craco and Ilice, form innumerable mud-hills or rather cones, which in summer resemble the ordinary soil, but in winter become mud volcanos. In the most fruitful part of that district, which is now an extraordinary desert, for there is nothing human to be seen for a whole day's journey, I found an old wall with an inscription announcing that here *Carolus dei gratia Hispaniorum Romanorum et Neapolitarum Imperator* had built a church in 1729, in order to afford religious consolation to the inhabitants. But the malaria and time have destroyed the church and the other buildings. During my geognostical observations there, my servant, who was an exceedingly strong and healthy individual, was attacked by the malaria, and, according to the last letter I received, is likely to sink under it. Rome seems to have much analogy to the district I have described. The whole region is composed of basaltic tuffa, which is continued as far as Naples, and there unites with the pasilipo tuffa of the Pfliegrian fields. To the north this formation still continues; and, as at Basi-

licata, terminates with mud deposits. Over this whole extent of country basalt or lava masses are frequent, and volcanic products are accumulated in hills. Even the limestone of the Apennines has in some places suffered alterations. The neighbourhood of Rome is also very hilly, dry, and entirely without vegetation. For days together, one sees nothing but desolate dried up corn fields without trees, bushes, or wood of any description. In early times Rome was surrounded by extensive sacred woods, which were not suffered to be destroyed. At that period malaria was unknown, though intermitting fevers were well known in the Pontine marshes. The avarice of the Popes, however, converted these sacred woods into gold, and so desolated the region that not a tree or wood is to be met with around Rome. With the commencement of this system of extirpation the malaria appeared; and has at length reached such a height that, yearly, many are carried gradually off by it; and in the summer months strangers and respectable inhabitants quit Rome, and thus the gigantic city is half depopulated.

From all my observations, which at present I have not time to develop, I believe I may deduce the following conclusions: First of all, it is necessary to distinguish malaria from marsh fevers; and this we may do, either by considering the form or the cause of the disease. To throw every thing together without further proof, is to give rise to uncertainty, and to form a chaos in the present state of our knowledge. When we take into consideration all the phenomena of marshy districts, the conclusion does not lie far distant, that the atmosphere is in different degrees rendered unfit for human organization, not by the passage of the water to the air, but by the decomposition and solution of vegetable substances; that thus those various intermitting fevers, and even the plague itself, are produced by the Adriatic Sea; that the removal of those diseases, though they certainly are most frequent in summer, is not connected with any particular period; and that, consequently, though marshy regions are avoided, yet in these emigration does not invariably take place. In the case of real malaria, in opposition to marsh fevers, the circumstances are different. So long as the earth is covered with living vegetables, as for example with corn, the air of the most suspected district is pure and healthy, and no one fears being attacked by the disease; but when the prodigious crops, which in those volcanic, loose-soiled districts are speedily brought to maturity, are removed, does the surface of the earth become dead at the warmest and most energetic period of its functions? or does not rather a portion of those substances, which were consumed by the leaves and roots of plants, now go to the atmosphere and render it unfavourable for the breathing of man, until all is again restored to an equilibrium in higher or more distant regions. That carbonaceous matter is beneficial to the vegetable kingdom, is as well known as that it is prejudicial to the breathing process in animals. That in Rome the higher parts of the town, as the *Trinita del Monte*, the *Capitol*, &c. are free from malaria, while low-lying districts, as the *campo vaccino*, &c. are very dangerous, is

certain, and confirms the view we have given. On the appearance of malaria the Pope leaves the low-lying Vatican, and inhabits for a certain period a palace placed on a higher elevation. No educated person in Germany doubts the organic function of the earth, to which also the cholera itself has been ascribed; and when a more general regard to nature advances to the south, the sacred woods will again gradually surround Rome, large vine branches entwine themselves round the elms, the hills be thus again covered, and the malaria reduced within limits. The fact is not without interest, that all real malaria districts are of volcanic formation, and that they are often to be found at the boundary of volcanic and non-volcanic rocks. That the district of the Aderner sea was formerly exceedingly unhealthy is certain; and the same was the case with the *Monte Gauro* or *Barbaro*, where at that period the best wine was produced, but since the formation of the *Monte Nuovo* by a volcanic eruption of 1538, between the sea and the hill, the spot has become healthy; but, at the same time, since that event it has been found impossible to grow even tolerable wine in a place where such nectar was formerly obtained. On the other hand, it is known that it is only at a recent period that *Monte Fiascone* has produced its nectar. Whoever may make the malaria the subject of his investigation will find a host of facts which he may collect, and from them make out a history of this difficult and little known subject.—*Edinburgh New Philosophical Journal*, April, 1834.

On the Function of Lactation in some of the Cetacea, by Professor Traill.—It has, I believe, excited considerable surprise in this country, to observe the keen discussions which have lately taken place between Geoffroy St. Hilaire and other French naturalists on the nutrition of the Cetacea.

British naturalists have long considered the existence of *mammæ*, the secretion of milk, and the lactation of their young, as among the best established facts in the natural history of that order of animals; but it would appear that, on the recent capture of a considerable number of a large species of *Delphinus*, Geoffroy St. Hilaire has endeavoured to throw doubts on the received opinion on this subject, on grounds chiefly derived from an observation some time ago made by *Baër*, that the *mammæ* of the Cetacea were analogous to the abdominal glands of the *Ornithorhynchus* and *Echinda*, two animals which, from the common termination of the fæcal, urinary, and generative organs, Geoffroy had proposed the generic name of *Monotrèmes*. This assertion of *Baër* seems to have been the origin of the scepticism of that distinguished naturalist.

The questions which have been discussed in France are involved in four propositions:—

1. Have the Cetacea *mammæ*?
2. If they have, do they secrete milk?
3. Have they a nipple? And,
4. Do the young derive their nourishment from the teats?

The three first have been long ascertained by various naturalists.

The ancients appear to have had very correct notions respecting these points, particularly in one genus of cetaceous animals, the *Delphinus*. Aristotle had remarked the striking affinity of the Cetacea to the Mammalia inhabiting the land; and states, "that young dolphins are nourished by the milk of their mothers as they swim in company with them." Pliny is more express when speaking of the same genus: "*Nutriunt uberibus, sicut Balænae.*" "*Quin et adultos diu comitantur; magnum erga partum charitate.*"

The fact of whales possessing teats is so well known to our Greenland sailors, that I never heard it doubted by any of them whom I have examined on the subject; and I have repeatedly heard them describe the milk which flows from the udder of the female whale when it is pressed. Mr. Scoresby, one of our most accurate observers, thus describes the lactiferous system of the great whale, *Balæna mysticetus*: "Two paps in the female afford the means of rearing its young. They are situated on the abdomen, on each side of the pudendum, and are two feet apart. They appear not to be capable of protrusion beyond a few inches. In the dead animal they are always found protruded.

"The milk of the whale resembles that of quadrupeds in its appearance. It is said to be rich and well flavoured." (Arctic Regions, i.)

I have had opportunities of examining several species of *Delphinus*, and can positively assert that the females have mammæ, which are furnished with teats or nipples, and which secrete milk.

It is known to some of my friends, that, in 1809, I described, chiefly from the drawings and notes of the late Mr. James Watson of Orkney, a new species of *dolphin*, to which I gave the name of *Melas* from its glossy blackness; but for which I afterwards proposed the trivial name of *Deductor*, from its gregarious disposition and propensity to follow a leader. The first description was published in the 22d volume of *Nicholson's Journal*; the second in *Scoresby's Arctic Regions*. In both, the fact of the young being nourished by sucking the dam is noticed, but shortly, because it was considered as too well established to admit of any doubt; but I am enabled, from Mr. Watson's notes, now in my possession, to state more fully this fact, as witnessed by him in the herd of 92 individuals of that species stranded at once in the Orkney islands; from which, the drawings and descriptions published by me were originally derived.

In a letter, dated in 1807, Mr. Watson thus writes: "On the 13th of December last, ninety-two whales of the Delphine genus were killed in the Bay of Scapay." "They were of various sizes, from five to twenty feet in length; the smallest were destitute of teeth and sucking their dams."

Another individual, who was then also present, and is now with me while I write, gives the following account of that extraordinary scene:—"When the whales were driven on shore in Scapay Bay, the young ones continued to swarm round their dams, until the reced-

ing tide left them also dry. During this interval I observed some of them clinging to the teats of their mothers. When separated the milk flowed from the teats in great quantity. It was white; and, as it flowed, of the consistence of thin cow's milk; but, on standing, it seemed to throw up cream, or to become more rich in appearance. As I walked round the animals, pools of milk were here and there distinctly visible. The moans of the mothers were most piteous, especially when their young were removed. This induced one of my servants to lift a small whale, and apply it to the mother's teat, of which it immediately laid hold. I cannot recollect that I saw it absolutely *sucking*; but it grasped the teat with its toothless mouth, and my impression was that it sucked."

These facts were witnessed by hundreds of persons, among whom I never met with one who thought differently on the lactation of the *Delphinus Deductor*.

Among Mr. Watson's papers I have found several measurements of this species, besides those already published by me.

"The eye, 2 inches long, and $\frac{5}{8}$ ths broad, is placed about 18 inches from the point of the snout.

"On the back of the head, and in a line with the eyes, was placed the spout hole, of a semilunar shape, $4\frac{1}{2}$ inches in length, by 2 broad.

"Length of the animal" (from which the drawing was made) "20 feet, and girth $11\frac{1}{2}$ feet. Pectoral fins $5\frac{1}{2}$ feet by 15 inches. Tail $5\frac{1}{2}$ feet wide, by 2 feet deep.

"Teeth conical, about $1\frac{1}{2}$ inches long, bent a little inwards; and in those *under* the largest size, there were 24 in each jaw; those *full grown* seemed to have lost some of their teeth."

It seems to me probable, that the animal lately described as a new species by the French *savans*, under the nature of *Delphinus Globiceps*, is only my *D. Deductor*, which has a semiglobular snout.

I may here remark, that, in my original description, by a misprint, the pectoral fins were said to be *from 6 to 8*, instead of *from 4 to 6* feet long. Another, of which the measurements were published in Scoresby's work, had a length of $19\frac{1}{2}$ feet, and the free part of its pectoral fins was only $3\frac{1}{2}$ feet by $1\frac{1}{2}$ foot.

In this species the spiracle has its cornua pointing forward. Mr. Scoresby has also published a figure and admeasurements of *Balæna Rostrata*, taken by Mr. Watson from a stranded specimen. In Mr. Scoresby's work, the circumference is stated at 20 feet; but in another set of admeasurements, in Mr. Watson's handwriting, I find the girth given at 10 feet only.

This species of whale may be readily discriminated from the young of the allied species, by the colour of its palatal laminae, which are in it *whitish*, while they are dark brown in the other species.

A fine specimen of the *B. rostrata* was, about two months ago, caught in the Firth of Forth, and exhibited in this city. It agreed exactly with the Orkney specimen in its external appearance; and a

good account of its anatomical structure may be soon expected from *Dr. Knox*, who has dissected the animal.—*Idem*.

ANATOMY AND PHYSIOLOGY.

Microscopic Observations on the Structure of the Brain and Nerves.—The “*Annalen der Physik und Chemie*” von Poggendorff, No. 7, 1833, contains an essay by Professor Ehrenberg of Berlin, entitled, “The necessity of a minute mechanical examination of the brain and nerves in preference to the chemical analysis, illustrated by observations,” in which there is given an account of some observations recently made by him with regard to the minute structure of nervous tissue, as seen by the aid of a very powerful microscope.

Many attempts of a similar nature to examine the structure of that fibrous-like texture which is in general seen in some parts of a fresh brain, and which becomes more obvious when the brain has been artificially hardened by steeping in alcohol or a solution of the muriate of mercury, or by boiling in oil, have been made ever since the microscope came into use, but these attempts have led as yet to very unsatisfactory results.

A hasty repetition of Professor Ehrenberg’s observations has not shewn us the appearances described by him, but the well merited character for accuracy and skilfulness in the use of the microscope which that observer has acquired by his interesting researches on the structure and functions of Infusoria, makes us hope that they may be found to be correct, and satisfies us that a short account of them will at all events be interesting to anatomists and physiologists.

The discordance in the accounts given of the structure of the brain and nerves by Leewenhock, Della Torre, Monro, Barba, Home, and others, and the unsuccess which has generally attended this investigation, may in some degree have proceeded from unskilful management of the microscope on the part of some,—from different modes of examination having been adopted by others,—from a total ignorance with regard to the disposition of the elementary texture in which the nervous matter of the brain has been generally believed to be contained,—from the supposition that has prevailed that a fluid or mucous matter might constitute the matrix in which the nervous filaments are deposited,—and from the circumstance that fibres of very different magnitude have been looked for in the nervous texture by different observers.

Professor Ehrenberg has shewn that the proper nervous substance of the brain and nerves does actually consist of very minute fibres; and he informs us that these fibres can only be discovered by the aid of a magnifying power of 300 diameters, and that he was sometimes obliged to have recourse to a much greater magnifying power, as 800

diameters, in order to bring them into view. He examined thin slices of the recent brain, and states that the fibrous structure was in general most obvious at the thin margins of the slices, when these were simply laid on the object glass-holder of the microscope, and that gentle pressure of the nervous substance between two thin plates of glass generally rendered the fibres more apparent.

The great mass of the cerebrum and cerebellum consists, according to Professor Ehrenberg, of very minute fibres irregularly disposed in the cortical part, and there interspersed with globules and plates, converging as they pass inwards from the surface towards the centre of the brain. The greater number of these fibres have not a regular cylindrical shape, but present the appearance of strings of pearls, the swelled portions being situated at some distance from one another, and united by narrower parts which are continuous with them, and are formed apparently of the same material. Besides these fibres, which Professor Ehrenberg calls *articulated*, from their knotted appearance, this observer states that towards the base of the brain and crura cerebri, other somewhat larger fibres, of a regular cylindrical form, are to be observed, interspersed among the articulated or knotted ones. These two sets of fibres are not held together by cellular tissue, nor fluid, nor mucous matter, but appear to be nearly in juxtaposition with one other, except where they are penetrated by the net-work of minute bloodvessels which are every where distributed through the brain. The cortical substance seems, according to Ehrenberg's observations, to differ from the medullary or white substance chiefly in the want of the straight cylindrical fibres, and in the articulated fibres being contained in a denser net-work of bloodvessels, and being covered by a layer of free granules larger than the dilated parts of the knotted fibres.

In the brain, the fibres run for the most part parallel to one another; they are sometimes seen to cross, and, in a few instances, Professor Ehrenberg states that he has observed two fibres uniting into one, but never any distinct anastomosis.

The larger straight cylindrical fibres, he states, are manifestly tubular, because it is possible to see the inner paries of the tube, and on dividing some of these fibres and gently pressing them between plates of glass, a granular medullary matter was made to issue from them. In the knotted or articulated fibres he never was able to discover a distinctly tubular appearance, nor could any matter be pressed from their interior; but notwithstanding this, Ehrenberg considers these also as tubular.

Professor Ehrenberg has observed a remarkable difference in the minute structure of some of the nerves of special sensation, the great sympathetic nerve, and the compound spinal nerves. He finds that the olfactory, the optic, and the auditory nerves, as well as the branches of the great sympathetic, are entirely composed of knotted or articulated fibres, similar in size and appearance to those forming the great bulk of the nervous matter in the cerebrum; while the

nerves of motion and the regular spinal nerves, are entirely composed of the straight cylindrical tubular fibres.

The cylindrical tubular fibres of the spinal nerves and of the nerves of motion coming from the brain, are considered by Professor Ehrenberg as prolongations of some of the articulated fibres of the brain itself, for he has observed at the origin of a nerve of motion, that the articulated fibres gradually lose their knotted appearance as they pass into the root of the nerve, and increasing slightly in diameter, become the straight tubular cylindrical fibres proper to nerves of this description.

The net-work of the retina affords an excellent opportunity of viewing the articulated cerebral fibres, but in order that these may be well seen, there must be removed from their surface, a layer of coarse granules, nearly of the diameter of the nuclei of the blood globules, and similar to those which cover the flattened extremities of the articulated fibres, at the surface of the cortical substance of the brain.

It remains still to be investigated, whether the knotted kind of fibres are only to be found in the nerves above mentioned, or are peculiar to all sensory nerves, while the cylindrical tubular fibres are peculiar to motory nerves.

Both the cylindrical and the articulated fibres, as they pass from the brain into the roots of the nerves, receive a nervous covering or neurilema, which invests each individual fibre, and each bundle of fibres, as well as the whole trunk of the nerve, with a dense cellular and vascular coat.

The cylindrical fibres are stated to be about $\frac{1}{750}$ of a line in diameter.

It must not be supposed, that Professor Ehrenberg has confounded the tubular appearance of the nervous fibre with that of the neurilema, for he professes to have accurately distinguished the limits of both these parts.

The ganglia are described by Professor Ehrenberg as somewhat resembling the brain, in respect to the nature of the fibres composing their nervous substance. They are formed by reticulated collections of both articulated and cylindrical fibres, interspersed with granules and cellular texture. In some places in the ganglia, he has also remarked a greater than ordinary enlargement of the swellings of the articulated fibres.

These observations have been made on the human brain and on that of some quadrupeds, of birds and reptiles, with nearly the same results in all.—*Ibid.*

PATHOLOGY AND THERAPEUTICS.

Frottement observed in Peritonitis, communicated by Professor Beatty.—As any thing that can contribute to our means of discovering diseases of the heart, must be looked on as in the highest degree interesting to the practical physician, it has occurred to me, that a notice of some cases which have come under my observation, although not of disease of the heart, may serve to corroborate the views so ably set forward and maintained by Dr. W. Stokes, in his paper on the diagnosis of pericarditis, in the fourth volume of this Journal. It is there stated, that the opinion broached by Collin, in 1824, and which had gained no credence for nearly ten years, is founded in fact, and that we have a physical sign of inflammation of the serous lining of the pericardium, viz. a “frottement,” or sensation of rubbing together of two uneven surfaces, distinguishable by the application of the hand, and by auscultation. The cases furnished by Dr. Stokes, in illustration of this point, are most interesting and instructive, and accompanied, as they are, by his judicious observations, must be considered as opening a new field in the departments of practical medicine and pathology. With a view to show that similar effects are produced in the peritoneum, when that membrane is the subject of inflammation, I have been induced to forward the present communication.

In January, 1832, a woman, aged 30, was admitted into my ward for the diseases of females in the City of Dublin Hospital, labouring under dropsy of the left ovarium. The tumour filled the abdomen from the pubis to the ensiform cartilage, and was remarkably hard and unyielding. A few days after admission she was attacked with severe pain in the belly, and febrile symptoms, which continued for a week, and required the abstraction of blood, and other antiphlogistic treatment, before she was relieved; during which time a remarkable sensation was communicated to the hand when applied over the umbilicus and its neighbourhood. The sensation was that of a grating or rubbing together of two uneven and rather dry surfaces, and was rendered most evident by ordering the patient to take a full inspiration, thereby causing the abdominal parietes to move more freely over the surface of the tumour. By the application of the stethoscope a loud and distinct “frottement” was audible, extending over a space of about five inches in diameter, with the umbilicus for a centre. In a few days the pain and inflammatory symptoms subsided, under the treatment employed, and with them, the sensation just described, and the audible phenomena altogether disappeared.

In the December following, I had an opportunity of observing similar effects, in the case of a young lady, who was under my care for excessive enlargement of the spleen. The tumour occupied the left half of the abdomen, dipping down into the pelvis on that side,

and its anterior edge passed the median line of the body, particularly at the lower part, where it extended considerably into the right side. She was seized with inflammation of the tumour, and during its continuance, phenomena precisely similar to those described in the last case were perceived; there was the same creaking sensation when either the hand or the stethoscope was applied to the surface, and this entirely subsided when the inflammation and pain were arrested.

It would appear that this method of diagnosis of disease of serous membranes is applicable only in those situations, where one, at least, of the opposed surfaces is adherent to a solid resisting body. I am not aware that phenomena such as have been mentioned can be perceived in inflammation of the peritoneum, under ordinary circumstances, where the soft pliable walls of the abdomen are in contact with the mass of intestines, but when a large solid tumour comes to occupy the cavity, as in the instances above mentioned, the case resembles that of the pericardium with the heart within it, and similar physical signs of disease of the serous surfaces become apparent.

It has appeared to me that these cases may be employed as confirming the truth and accuracy of the diagnosis of pericarditis, and with that view I wish to record this brief notice of them.

Case of Amnesia cured by local Depletion, by Dr. Zabriskie.—Patrick Hart, ætat. 45, of a thin spare habit, phlegmatic temperament, who had been very intemperate, had been troubled for a long time with loss of memory, frequently forgetting the most common things occurring to him. He would often leave part of his clothes in the field where he was at work, or on the road, and could not remember where he had left them; in conversation he would repeat the same thing several times, and would often forget what was told him, so that frequently he would appear almost like an idiot. As he complained of pain and distress in his head, cups were applied to the temples, which relieved the pain. About three weeks after this he again came to me, stating that his memory had been much better since he had been cupped, and requesting that this might be repeated. It was accordingly, and since this, he has frequently told me that he could remember as well as ever he did, and his companions have also assured me that his memory was restored.—*The American Journal of the Medical Sciences*, Feb. 1834.

Effect of Lead on Animals.—It is an interesting fact, that many of the lower classes of animals are subject to this disease. Burserius was one of the first authors who directed the attention of medical men to this singular occurrence. I have got from my father an abstract of some observations made by him on this subject, during a visit to the lead hills in Scotland. He found that in the pastures among these hills, and in their immediate vicinity, cows, horses, sheep, dogs, and even poultry were subject to colic from lead. The symptoms, also, in these animals were observed by him to bear a very close analogy to those of the human subject. Thus, for instance, in

cows there was obstinate constipation with suppression of urine, the poor animals seemed to suffer from violent twisting pain of the belly, and sometimes were thrown into a state of furious excitement, running wildly across the country. He learned also that during that period it was calculated that at least one-tenth of the cows in this situation had died of the effects of the poisonous absorption of lead. One of the most ordinary precursory symptoms was the animal becoming what is called hide-bound, this was followed by obstinate costiveness, and there was much apparent suffering, with panting, starting, and slavering from the mouth. Where the cerebral symptoms were most prominent the signs of abdominal irritation were by no means distinct, and this, as I have remarked, is the case in the human subject. In some, who had the head affected, and ran wildly through the country, the secretion of milk was stopped, and this accords too with the effect of lead on the human female. Another remarkable circumstance is, that animals, living in the vicinity of these lead hills, have exceedingly difficult labours. Sheep are subject to epileptic convulsions and paralysis; dogs have the head principally affected, they run across the country slavering at the mouth, as if in a state of hydrophobia, but they do not bite, and are in all respects perfectly harmless. In barn-door fowl the generative functions were injured, and the hens reared or brought there ceased to lay eggs.

There is one fact mentioned in these observations, which tends to confirm the opinion of Dr. A. T. Thomson, that the poisonous effects of lead are produced chiefly by the carbonate. A distance of very few miles from the valley renders animals quite free from any liability to the disease, but if they should happen to stray into the immediate neighbourhood, and particularly into a portion of low ground, flooded during the winter months by a river, which runs along the valley from the mines, and which, in all probability, leaves behind an efflorescence of the carbonate of lead, they are very liable to be affected with colic. It is said, also, that the poison is produced by the volatilization of lead in the smelting houses, the vapours of which are carried down the valley and through the neighbouring parts. Be this as it may, the Gaelic name of the valley signifies, the *poisonous vale*, and, as it is very probable that this name had been given in consequence of the deleterious qualities of the place long before the establishment of lead works, it tends strongly to favour the opinion that it is the water which contains the poison.

The mode of cure employed by the shepherds in this place is to give strong purgative injections, and remove the cattle from the influence of the poison, by sending them to new and healthy pastures. In this way they frequently recover, and if we look to the cause of the disease, its symptoms, or mode of cure, we shall observe a striking analogy between it and the colic from lead in the human subject. I shall conclude this subject at my next lecture, and then go on to diseases of the chest.—*Dr. Stokes' Lectures, Lond. Med. and Surg. Journal, May 24, 1834.*

Notice of a Case of Encephalic Bruit de Soufflet, communicated by Dr. Perceval Hunt.—As Dr. Fisher of Boston has lately called the attention of the profession to the occurrence of bruit de soufflet in the heads of individuals labouring under certain diseases of the brain, the subjoined case, though adding little to our information on the subject, is not perhaps altogether devoid of interest.

A girl, aged 20, of stout stature, full and plethoric, has been much annoyed during the last two years by a continued noise in the head. On applying the stethoscope a little beyond the forehead, and nearly in the situation of the right coronal suture, or behind the right ear, over the mastoid process, a clear musical bruit de soufflet, synchronous with the pulse, can be distinctly heard; this sound may be rendered more or less intense by altering the position of the head, for if, during the application of the stethoscope, her head be slowly brought from the erect to the horizontal posture, the sound is observed to become proportionably fainter, till ultimately, when the neck is much bent, it ceases altogether. The same effect can be produced by making gradually increased pressure on the jugular veins. On the other hand, pressure on the right carotid, violent exercise, or any thing which hurries the circulation, increases it. No change in the sound follows compression of the left carotid.

The action and sounds of the heart and carotids are perfectly regular. Her health is in every respect good, nor does she suffer any inconvenience, further than that produced by the constant noise in the head; she never received an injury of any kind, and is quite incapable of assigning any cause whatever for the disease.

The bruit de soufflet probably has its seat in one of the arteries of the brain. The situations where audible, the immediate effect of pressure on the carotid, the grave character of the tone, (indicating a vessel of some size,) would lead us to fix on the right carotid immediately after entering the head.

Since meeting the above case, I have applied the stethoscope to the heads of numerous individuals of all ages, but have not been able to detect any sound, save (as Dr. Fisher has already observed) that of the respiration in the nasal fossæ, and in some rare cases, but by no means in all, a faint pulsation.

Fistulous opening of the Stomach cured. By Dr. J. H. Cook.—This was the case of a widow, aged 39 years. She presented the following appearance:—A fistulous opening, capable of admitting a bullet, existed immediately by the side of the umbilicus. On removing the bandage a gill of bile was ejected, after which a small quantity of a different (gastric?) fluid trickled out. These discharges were attended with great pain, the surface of the abdomen was excoriated, inflamed, and painful. A flexible catheter was introduced for thirteen inches, if pushed farther it caused vomiting; a glass of water that she drank was entirely discharged through the fistula after twenty seconds; from the direction of the catheter and the sensations of the patient, the opening in the stomach seemed to be at the pylorus.

Treatment.—A large ox bladder slit open and spread with adhesive plaister was placed over the abdomen as a protection against the acrid discharge which caused the excoriation; there was an opening corresponding to the external orifice of the fistula. A bandage and cylindrical compress were applied over the course of the fistula; mucilaginous drinks and nourishing enemata were ordered, the bowels not having been opened for ten days; the abdomen soon healed, and in thirty days the patient recovered; the fistula being apparently obliterated, and the alvine evacuations restored. She has remained (now several months) quite well.—*American Jour. of Med. Sciences, from the Western Jour. of Med. and Phys. Sciences*, Jan. 1834.

In the *Lancet* a case is detailed by Mr. Hamilton, of a female in whom a fistulous opening of the stomach also existed. Here the attempt to close the opening caused symptoms of gastritis and fever. In this case the disease seemed to be cancerous.—*Ed.*

Salivation by Sarsaparilla.—It is mentioned by Cox, in his *Narrative of a Residence on the Columbia River*, that several of his party who used the fresh sarsaparilla, which grows in abundance in this situation, were salivated by it. This fact is interesting as connected with the antisiphilitic and antimercurial powers of the remedy. We do not know whether the homœopaths have got possession of this circumstance, but if not they are heartily welcome to it.

Abdominal Pulsations resulting from Causes not as yet well determined, and regarded as dependent upon a Nervous Affection.—These pulsations are, for the most part, perceived principally at the epigastrium, and occasion there a throbbing, and sometimes a tumefaction, calculated to lead to a belief of the existence of an aneurism of the cœliac artery. They frequently extend also along the aorta, even as far as the iliacs. In persons who are not very fat, when lying on their backs, the pulse of the aorta can always be easily detected if pressure be made a little to the left of the median line, about half way between the navel and scrobiculus cordis, and in certain places this pulsation is painfully felt even by the patient himself. This occurs more commonly about the middle period of life, appearing to be more frequent in females than in males. It is in nervous and hypochondriac persons, individuals labouring under derangement of digestion, who are subject to hemorrhoids, and in hysterical females, often after an obstruction or suppression of the menses, that this affection has been most frequently observed. Zuliani (*de Apoplexia*, Lips. 1790, p. 79,) Pinel (*Nosog. Phil.*) Albers (*Ed. Med. Surg.* iii. 12,) Senac (*Traite des Malad. du Cœur*), De Haen (*Heilungs Methode Uberstebzt von Plantner*, Leips. 1782, b. 2. s. 29.), &c., describe these pulsations as a common attendant upon hypochondriasis. Dr. Albers relates the case of a man, about forty years of age, severely afflicted with hypochondriasis, attended with oppression, tendency to fainting, complete sleeplessness, &c., in whom a very

strong pulsation could be felt along the whole course of the aorta, and even in the left iliac. After the use of gentle purgatives, and the discharge by stool, for several days, of a pitchy black matter, the above symptoms ceased, and the pulsation abated, but continued perceptible for nine months afterwards. This affection is well known to be a frequent attendant on various disorders of the digestive organs. Lewenhoeck relates a case which lasted three days, during which the digestive organs were much disordered.—(Phil. Trans. Abr. vii. 683.)

The following case is related by Dr. Albers:—A young woman, whilst menstruating, and who had been for some days constipated, was seized with fainting fits and febrile symptoms, occasionally voiding from her bowels a quantity of black matter, each evacuation of which was followed by a swoon. One morning, at five o'clock, Dr. Albers was sent for, as the patient was believed to be dying. She was extremely exhausted, and the fainting fits succeeded each other almost without intermission. She was only able to tell, in an under voice, that she felt a palpitation in her belly, and when Dr. Albers applied his hand to the part he felt a violent pulsation, extending from the ensiform cartilage to almost the bifurcation of the aorta. The pulsation of the *heart* was *weaker than natural*, the pulse at the wrist extremely small, and not synchronous with the pulsation in the abdomen. Dr. Albers and Dr. Mayerhoff at first believed the patient to be affected with aneurism, but Dr. Weinhold recollecting some similar cases recorded by Morgagni, entertained a different opinion, and recommended perseverance in the employment of laxatives and glysters, combining some opium with the former. Under the use of these remedies in a few days the pulsation of the abdomen and tightness of the chest diminished. The stools were at first of the colour of chocolate, but afterwards resumed their natural appearance. In a short time the patient got well, and remained so several years afterwards. (Ed. Med. and Surg. Jour. iii. 8.) Thilenius (Med.-Chir. Bemerk, Frankfort, 1789. s. 211,) and Mr. Hodgson, (Diseases of Arteries and Veins,) notice these pulsations as occurring with persons affected with flatulence of the stomach. Hau (diss. de Gastrodyn. Upsal, 1797.) has met with them in cases of gastrodynia. Professor Chapman, in his lectures, states that he attended a female in whom the pulsations were so violent as actually to raise up the bed-clothes. They appeared to depend upon disordered digestion, and were cured by remedies directed to that affection. Albers has met with these pulsations in cases of hæmorrhage from the intestinal canal; and he says that hæmorrhoidal patients, especially when inconvenienced by compression of the tumours, often complain of throbbings about the spleen, which are distinctly perceptible to the touch, and pulsations in this last situation were also experienced in a labourer who was subject to bilious attacks, and whose case is narrated by Tulpinus, (Obs. Med., Amst. 1652, lib. ii. chap. 28.)

Morgagni describes the case of a woman, aged forty-four, who,

after a suppression of the menses for some months, was attacked with palpitations in the epigastrium, and there was an obstruction of the menses in one of the cases mentioned by Hippocrates. Dr. Albers has seen these pulsations supervene at the commencement of pregnancy, and recur at every new gestation. He reports (*loc. cit.* p. 11,) a case in which this was so constant that the woman relied upon that sign in preference to all others. The pulsation was sometimes so violent, that the husband assured Dr. A. that it might be heard distinctly. It ceased usually after the third month. Senac (*Traite des Malad. du Cœur*,) has met with the affection under consideration in chlorotic patients, and it is often present in hysterical women. Albers (*loc. cit.* p. 12.) Professor Mott relates (*loc. cit.* p. 356,) a very interesting case, occurring in a female twenty years of age, of sanguine temperament, and very delicate and irritable habit, the mother of two children, who constantly, since her marriage, had been subject to fits of hysteria, great difficulty of breathing, with a most frightful sense of suffocation, great palpitation of the heart, and a distressing throbbing of the arteries of the head and superior extremities. During convalescence, after the birth of her second child, she was suddenly attacked with a strong pulsation in the epigastrium, opposite the origin of the cœliac artery. This pulsation was synchronous with the action of the heart, could be seen externally, was unattended with any tumour, and was most violent in the afternoon and evening. Tonics and antispasmodics, gentle and regular exercise, and a residence in the country, improved her health, and the pulsation entirely left her.

In a case related by Teale, (*Treatise on Neuralgic Diseases*, case xiii.) pulsation of the epigastrium was attendant upon spinal irritation, and we have also met with it in cases of a similar character.

All these facts seem to indicate that the pulsations under consideration are really dependent upon some nervous affection. M. Dance inclines to the belief, that the solar plexus, and its ramifications, have something to do with their production, and he quotes, in support of this, an experiment of Sir Everard Home, instituted with the view of determining the influence of the nerves upon the arteries. Mr. H. having laid bare the carotid artery of a rabbit, applied caustic potash upon the neighbouring branches of the great sympathetic, which soon caused a violent beating of the artery.—(*Trans. Roy. Soc. Lond.* 1814.) We are led ourselves to believe, that they are for the most part somehow dependent upon spinal irritation, from having seen them in connexion with that affection, and from the striking similarity between the accompanying symptoms and those attendant upon that disease. A comparison of the cases to which we have just referred, with those related by Teale, in his admirable work on neuralgic diseases, will bear us out in this opinion. It is not easy, however, to explain the precise mode of connexion between the cause and effect in these cases.

The diagnosis may generally be determined by attention to the following circumstances:—These pulsations often vary in force and

frequency, appear suddenly and disappear in the same manner, and are not always synchronous with those of the heart. In aneurisms auscultation shews an increase in the calibre of the artery, and the pulsations caused by the impulse communicated by the arteries to a tumour arise gradually, increase in the same manner, and they are synchronous with those of the heart, and this last is also the case in aneurisms.

These pulsations being merely a secondary affection, the *treatment* must be directed to the cure of the primary disease. When this last is spinal irritation, the treatment, proper for that affection, as the local detraction of blood by cups or leeches, followed by blisters or tartar emetic ointment to the spine, are to be employed. When connected with dyspeptic symptoms, with hypochondriasis and hysteria, the treatment calculated to remove these complaints is to be resorted to. In the hypochondriacal patient, whose case is related by De Haen, the pulsations were cured by active opening medicines, and in two cases related by Albers, in which there had been previous constipation, the pulsations ceased under the use, continued for some days, of mild purgatives, which evacuated a quantity of dark matter from the bowels. In the female, whose case we have quoted from Morgagni, and in whom these pulsations succeeded to suppression of the menses, they were promptly cured by bleeding. Cold baths, mild tonics, and moderate exercise will also be found useful in some cases. —*From the American Cyclopædia of Practical Medicine and Surgery, PART I.*

Embryonary state of Liver—Simulating Chronic Hepatitis.—

There are some cases of great tumefaction of the liver accompanied with more or less of the symptoms of hepatic derangement, and yet, in such cases, you may have no disease of the liver at all, at least none of the ordinary forms of hepatitis: these are cases in which there exists, in adults, a persistence of the embryonary condition of the liver. If we compare the condition of this organ in the infant and in the adult, we find many essential points of difference. In the infant it is comparatively large, and as it were hypertrophied; it descends far below the margin of the ribs, and occupies a large portion of the abdominal cavity. On the other hand, if we examine its state in the adult, we find that it has shrunk beneath the short ribs, and that its size and dimensions are comparatively much reduced. Now this physiological atrophy of the liver is a natural and healthy process. There are *certain individuals, however, in whom this change does not take place, and who grow up with the liver bearing the same proportion to the other organs as it did in the fœtal condition.* This curious condition is one of the varieties of arrest of development, and is, in almost every instance, observed in those persons whose constitutions present that train of phenomena to which the term *scrofula* has been applied, and which (if I have time) I shall show you is explained, or at least great light is thrown upon it, by the theory of arrest of development. *In such subjects the*

tumefaction of the liver is by no means a measure of actually existing disease. If you were to suppose this tumefaction of the liver to be the product of actual recent disease, and proceed to treat the patient in the same way as you would treat a case of hepatitis in the healthy subject, you would not only do no good, but, in all probability, a great deal of mischief. I know the case of a gentleman, in the enjoyment of good health, who has this tumefaction of the liver to a very great degree. He is of a thin spare habit of body, with a full, round, and prominent belly; he is pursuing the avocations of an active profession, and yet you will hardly credit me when I say that his liver extends below the umbilicus, and close to the anterior superior spine of the ilium; yet he is very active, and to all appearance a healthy man. You will often meet with this condition of the liver in children who are attacked at an early age with symptoms of *tabes mesenterica*.—*Lond. Med. and Surg. Journal*, April 19, 1834.

Hydatids of the Kidneys passed by the Urethra.—Elijah Jones, æt. 27, a comb-maker, of pale complexion and slender form, applied to Dr. Duncan on the 13th of May. He brought with him several portions of a membranous looking substance, having a pearly, semi-opaque, pulpy appearance, and which he said he had passed with his urine three days previously. He stated that he made water rather oftener than usual, and sometimes with difficulty; and that he had a constant shooting pain in the perinæum, which was increased after micturition. He had also occasionally a sense of weakness in the right lumbar region. Urine of natural appearance, and functions natural.

On examining the substances above-mentioned, one was discovered of a globular shape, and about an inch and a quarter in circumference, evidently an hydatid of the genus *Acephalocyst*. It was filled with a transparent fluid, having floating in it another very small hydatid, which gravitated in the surrounding fluid. The remainder of the substances consisted of the coats of seven or eight hydatids which had burst, and which, when filled with water, varied in bulk from the size of a pea to that of a pigeon's egg.

He stated, that seven months ago he got a bad cold, and suffered from pain above the right hip, and in the perinæum; and that, five months ago, a blister was applied, which removed the pain above the ilium, but that he still feels occasional uneasiness there. About a month ago he passed several hydatids, which caused some obstruction to the flow of urine, but no more appeared until three days ago, although during the last month he has had constant pain in the perinæum, apparently near the neck of the bladder. He was ordered to take diluted muriatic acid, twelve minims three times a day.

16th. Another hydatid has been passed (burst). The pain is nearer the end of the penis.

24th and 25th. Two more hydatids passed, which obstructed the urine for some time. No pain in the perinæum now; it is generally felt six or seven hours before the hydatid is expelled.

June 3rd. No more hydatids have appeared. Complains only of weakness in the back and hip.

The above case is interesting from the extreme rarity of its occurrence. Dr. Craigie says, that "the uterus is the only cavity, with mucous surface, in which inspection shows that hydatids have been found; and there can be no doubt that, in this case, they were formed in the kidneys, and probably increased in size after their descent into the bladder.

The following account of the post mortem appearances in one of the few instances of the kind on record, is taken from the Philosophical Transactions, 1687. Dr. Tyson, in stating what was observed in the bladder, says,—“Therein, upon apertion, we discovered a very strange sort of cystes or bags, of the exact figure of eggs, of several dimensions, some larger than goose eggs, others as big as hen eggs, to the number of twelve in all; and about eight of them whole and repleat with a limpid serum; . . . all of them loose and free, without the least adhæSION, either to one another or to the coat of the bladder; . . . nor could we imagine that this miserable patient could possibly make any water but what happened upon the breach of some of these watery tumours, when the bladder was crouded beyond its dimensions. . . . The *ureters* were of the largness of the small gutts in children, so that they could easily admit two fingers into their cavity. . . . One of the *vesiculæ*, being opened, had a large cluster of small *ova* as big as grapes, all repleat with liquor. All the rest contained nothing but *serum*.” Two small *ova* were observed at the entrance of each ureter, having descended from the kidneys.—*Liverpool Medical Journal*, July.

SURGERY AND MIDWIFERY.

Further Observations on the Section of the Tendo Achillis, for the Cure of Club-foot, by Dr. L. Stromeyer, of Hanover.—In the fourteenth number of this Journal, we inserted the important cases first published by Dr. Stromeyer, and translated by Richelot, for the Archives Generales de Medicine. In the June number of the same periodical, four additional cases are published which possess great interest.

In the first case, the operation was unsuccessful; the patient, a boy of seven years of age, was born with both extremities affected, but by a continued surgical treatment, the deformity was partially removed, particularly of the left foot, while the right remained in a very unsatisfactory state. The edge of the foot being inclined strongly inwards, the point downwards, and the limb emaciated. The operation was performed on the 26th of August, 1832, and the wound cicatrized on the fifth day, but from the sensibility of the part,

Stromeyer did not commence the extension of the part until the eighth day. By a gradual extension for fifteen days, the foot was placed in its natural position, and by means of the apparatus, was thus preserved for three weeks ; at the end of this time, it was found that the intermediate substance was only two or three lines in length. After the removal of the apparatus the deformity re-appeared, notwithstanding the use of the buskin furnished with an iron rod. It was plain that the extension should have commenced sooner, so as to produce rather an elongation of the intermediate substance, than that of the muscular fibres. The parents of the child would not consent to a second operation.

In the subsequent cases, Stromeyer availed himself of the experience derived from this failure. In the next case, the patient aged 13, had for four years, without any known cause, laboured under a club foot of the left extremity. The deformity was extreme ; the toes being, particularly the first, strongly turned inwards, and retained in that position by the action of the flexor of the great toe, the tendon of which was in a state of remarkable tension. His first step was to divide the flexor of the toe. The foot was allowed to remain in repose for three days, at the end of which time the extension apparatus was applied. In eight days the effect on the position of the foot was evident. He then divided the tendo achillis, and in ten days the foot formed an angle of 70° with the thigh. One month after the section of the tendo achillis, the extension apparatus was removed, and the foot put in the buskin, and the extension continued at night by means of the screw ; the young patient then began to walk with so much ease, that he was allowed to amuse himself for a quarter of an hour in the street ; but the enjoyment of liberty made him prolong his exercise for three hours ; fatigue was the only inconvenience he felt. A fortnight after he was able to walk five leagues, the foot preserving the perfect shape, only that the toe was slightly inclined inwards ; its volume more developed, and its motions flexible ; the leg had also become fuller.

Another patient, aged 9, whose foot was deformed similarly to that last mentioned, was treated by the buskin for five months without relief. About three years after, his foot was much worse than when he was first treated ; the dorsum of the foot formed a convexity with the shin ; the toes were flexed towards the heel ; the great toe turned up at right angles with the dorsum ; the pain in attempting to walk was insupportable. The tendo achillis was divided on the 10th June, 1834, adhesion took place on the fifth day, when extension of the intermediate substance was begun ; the foot was placed in the apparatus until the twenty-eighth day after the operation, and then the buskin was applied. The child immediately walked with the greatest facility. As the foot still turned a little inwards, the flexor of the great toe was divided, and three days after the extensor of the same toe was also divided. The foot was again placed in the apparatus, and the great toe kept down by adhesive plaster. In eight days after he was allowed the buskin. The section of the tendons of those last mentioned muscles, so far from paralysing their motions, had rendered them

more free. The strength of the limb increased rapidly; at the end of the month of March, his step was perfectly secure in a common buskin.

The next case is that of a young lady, aged 19, who had become paraplegic at two years old. By degrees she recovered the use of her limbs, except that the right foot contracted as she grew up. When Stromeyer saw her, the astragalus was exceedingly prominent, the dorsum forming a right line with the leg, the foot was very little turned inwards; in walking she leant on the metatarsal bone of the fifth toe; the sole of the foot did not touch her buskin, though she had a cork heel four inches high; the limb was atrophied, and scarcely any motion in the foot. The tendo achillis was divided on the 11th March, 1834. On the fifth day adhesion took place. Three weeks after the operation the foot formed an angle of 70° . The apparatus was then changed for the buskin, and the same position maintained. At first her attempts to walk were very awkward. It is now three weeks that she exercises the limb, and improvement in walking is surprising; she requires no support, and the appearance of the foot would never reveal that it had been deformed. The mobility of the limb improves daily.

In those three cases, he remarks, it is almost impossible to ascertain the exact length of the intermediate substance, and it is only by feeling the cicatrices, that one part of the tendon is found thinner than the remainder. From the high situation of the calf of the leg, it must be considerable.

Rupture of the Bladder not immediately mortal.—A strong constitutioned man, aged 30, had been drinking white wine nearly a whole day in a tavern, without attending to the state of his bladder. On coming out he quarrelled with his comrade, who knocked him down, and gave him a kick over the pubis. He instantly felt violent pain. He was carried to the Hotel Dieu and bled; leeches were applied over the hypogastric region; fever set in. Although the bladder did not appear distended, M. Dupuytren sounded it to evacuate its contents; for, from the history of the case, rupture of the bladder was suspected. There came away only a small quantity of turbid reddish urine. In directing the beak of the catheter in various directions, M. D. thought that in one point, corresponding to the antero-superior paries of the bladder, it penetrated far more deeply. The rupture was supposed to have occurred in that point; and to confirm the diagnosis, the sound gave exit to a new quantity of fluid like the former. There was evidently extravasation of urine into the abdominal cavity. Leeches were again applied over the pubis, with emollient poultices; a small quantity of bland drinks was allowed, and strict regimen. Under this treatment the inflammation did not appear to extend beyond the region of the bladder; pain was not felt in any other part of the abdomen. For four days he was in a very dangerous state. On the fifth day the pain and tension of the hypogastrium diminished; the pulse was less frequent, and fuller; the skin softer, cooler, and inclined to a gentle dia-

phoresis; appetite returned. But notwithstanding the restrictions in regard to diet, the patient ate a quantity of bread and sweet meats, drank some wine, and in the course of the seventh day he sunk. On dissection forty-eight hours after death, adhesions of cellular membrane forming very firm bands were found between the parietes of the abdomen, the lateral parts of the bladder, and the other viscera contained in the cavity of the lesser pelvis. Other bands formed a pouch behind the bladder, containing a turbid urinous fluid, mixed with flocculi of albumen. The bladder was *torn* to the extent of two inches at the postero-superior part and in the direction of its greatest diameter. On beholding the admirable provision of nature to establish a new reservoir for the urine, and seeing the advancement of its organization, every one must agree with M. Dupuytren, that death was caused by indigestion, consequent on the greedy and gluttonous appetite of the patient, rather than by the rupture of the bladder and the extravasation of urine. The stomach and small intestines presented some patches of engorgement of their vessels. There was only a slight effusion of serum at the base of the brain.—*Archiv. Generales*, June, 1834.

Observations on the use of Corrosive Sublimate in Ophthalmia, by M. Tuzet Dupouget fils.—M. Dupouget has been induced to try the effect of this medicine, from the authority of M. Bailly of Paris. A woman six days affected with intense inflammation of the conjunctiva of the left eye (from exposure to a very great change of temperature) could not bear the light; she felt as if her eye was full of gravel; there was great engorgement of the vessels; antiphlogistic treatment was indicated; a collyrium of four grains of corrosive sublimate, to four ounces of distilled water was prescribed to bathe the eye, thirty to forty times a day, and a tepid foot bath morning and evening. On the third day of this treatment she was almost cured, there being only a slight inflammation near the external angle; she could bear the light, and had no feeling of sand in the eye; she continued the collyrium and baths for six days, when the eye was quite well. The second patient was a man thirty-nine days affected with ophthalmia of both eyes; he had caught cold from fishing at night by torch light. He had been treated by leeches to the temples, blisters to the nape of the neck, and various collyria. There was on the cornea of the right eye a speck the size of a grain of millet; this eye was the most painful, and secreted clear irritating water. He was ordered the same application (gr. i. to oz. i.) to keep up the discharge from the blister, and a cooling diet. On the eighth day the disease was evidently better. On the thirteenth the inflammation was completely gone, and very soon the recovery was perfect.—*Revue Medicale*, June, 1834.

Ununited Fracture of the Os Humeri, healed successfully by stimulating Injections into the Wound.—In a case of the above description, Dr. Hulse, surgeon to the Naval Hospital of Pensacola, relates that two months after the fracture no bony union was formed.

He first thought of resorting to the seton, but adopted the plan of daily injections with a stimulating fluid into the wound, which had become fistulous. He began with port wine and water, proceeded to salt and water, and eventually to a solution of sulphate of copper. In two months a firm union was established, and the patient was able to use the arm at driving nails. Small fragments of bone were afterwards discharged from the fistula.

In cases where no fistula exists, Dr. Hulse proposes to insert an instrument till it comes in contact with the fractured extremities of the bone, and using a tube through which the injections can be thrown.—*American Journal of the Med. Sciences*, February, 1834.

We are further informed in the May number of the same Journal, that in the above case a perfect cure has been effected, so that the seaman has been able to return to his duty.

Singular Situation of Labour Pains; by Chandler Robbins, M. D.—The lady who was the subject of this case usually enjoys good health, with the exception of occasional headaches. She has seldom been ill, except at the periods of her confinement. She has had three children, at the birth of all of which I have assisted her: the eldest is about seven years old, and the youngest about as many months. Her labours have been severe, and lasted from six to ten hours, but in no period of either have the pains been referred to the back, or groin, or the uterine region; they have all been confined to the muscle around, and particularly in front of the femur; they have been most severe about midway between the upper or lower extremity of this bone. Here she has solicited pressure, and here, at the commencement of each pain, her own hand has been involuntarily placed. In every other character but *their* location the pains have been such as we always find them; but to this location they have been confined, no sensation of pain having been at any time referred to the vicinity of the uterus.

The case may stand on record as undeniable; the lady is altogether above deception or pretence; her moral sense is of the highest order. It may not be amiss to add that the after-pains have also been confined to the same region.

Dr. Dewees, in Dr. Hay's Cyclopædia, notices that after-pains may be located in the knee, and even in the jaw.—*Boston Med. and Surg. Journal*, March, 1834; from the *American Journal of Med. Sciences*, May, 1834.

Extra Uterine Pregnancy.—The last number of Hufeland's Journal, for February, contains an interesting paper on Extra-uterine Pregnancy, terminating favourably by the Efforts of Nature, after twenty-one months' Duration, by Dr. M. B. Hanius, of Strelitz.

After a few preliminary observations, the author proceeds to relate his case, dividing it into four periods, viz.: pregnancy, time of delivery, resorption, expulsion.

The patient, Mad. C., æt. 26, a healthy middle-sized female.

of a vigorous mind, who had been married five years, and had one child three years ago after a natural labour, became pregnant about January, 24, 1830, and was soon after attacked, whilst at the water closet, with a very acute pain in the pelvic region, which recurred each time the bowels were moved, and alternated with a feeling of internal uneasiness. She had recourse to different postures with but little benefit, the horizontal position in bed alone seemed to afford relief. Mad. C. thought it might be the result of cold, especially as, after three months' continuance, it seemed to subside on the approach of warm weather. It returned, however, very severely. Some fears of abortion were created by the discharge of a small quantity of blood from the vagina.

This painful state lasted until the end of the fifth month. On the 24th June, at 6, A. M., she was attacked with acute pain in the lower belly, more severe than before, which was followed in a few hours by slight hemorrhage, vomiting, universal shivering, forcing efforts to pass urine and fæces, with pallor and coldness of the face. Some antispasmodics were administered in a clyster, and the patient obtained relief; instead of the acute pain she felt a forcing down, as though the contents of the abdomen would fall out, which obliged her to remain constantly in bed or on a sofa; this was the more tiresome as she could only lie on the right side (when the head of the child could be felt) with any comfort, any other position occasioning severe pain.

The dysuria continued long; the bowels could only be kept free by clysters, and each motion caused pain, and the appetite was very small. The nervous system was so much shook that she remained in a very excitable state, subject to hysterical attacks. In this state she continued up to the end of the ninth month.

As to the child, it was impossible to ascertain whether it lived after the last attack, as Dr. H. could never discover any movement on examination, and the patient had only observed a very slight sensation of that kind twice.

From an attentive consideration of the symptoms already enumerated, Dr. Hanius diagnosticated an abdominal extra-uterine pregnancy.

About the latter end of October (the normal termination of her pregnancy) she was attacked by uterine hemorrhage, followed by a discharge of water from the vagina, "which," says the author, "would have been mistaken for the liquor amnii by one ignorant of midwifery." She suffered no pain, and there were no uterine contractions.

After this regular lochia were discharged, and in two or three days the breasts became turgid; milk was secreted, and she had some fever, terminating in sweating. She recovered gradually, without accident, and left her bed the fifth week, looking delicate, but healthy. In fact, she felt so well, that she came to the conclusion that she had not been pregnant, but merely suffered from excessive menstruation. The catamenia recurred in December following, and

continued regular for four months. At each period a considerable quantity of water was discharged along with the menses. Thus she continued until March, when she was attacked with continued fever, which lasted some time, but was relieved by the means employed.

The head of the fœtus, which had formerly been discovered in the right iliac region, now moved anteriorly, and became fixed in the pubic region, formed a tumour which pressed downwards into the vagina in front of the uterus, the orifice of which organ was discovered posteriorly. The tumour gradually diminished, and passed over to the left side, where it could only be discovered on minute examination.

In the beginning of July she had diarrhœa, which lasted some time, and along with the fæces there passed into the "commode" something in weight and consistence resembling laudable pus. This was succeeded, in a few days, by a discharge of pure blood, and the day after one bone of a phalanx was found in the night chair. This was discovered to have passed through a perforation in the coat of the rectum, exceedingly small, and only just within reach of the finger. Through the same opening there passed, at different times, both the femurs, the ossa ilia, the scapulæ, the clavicles, an ulna, five ribs, and some of the bones of the wrist and ankle, and some bones of the cranium. Many others were doubtless passed with the fæces and lost. The patient recovered.

Adhesion of the Placenta to the Fundus Uteri, successfully treated by Ergot, by E. Worrell, M. D., Surgeon to the U. S. Army—This was the case of a black girl, the placenta being retained three days after delivery. She had severe pain in the region of the uterus; hot dry skin; pulse 120, and very small; a most disgusting stench was observed on removing the bed-clothes; the introduction of the finger gave her intense pain; the edges of the os uteri were firmly contracted and unyielding; by drawing the cord gently, the adhesion was found to be at the fundus. Fifteen grains of ergot were administered, and five such doses were given at intervals of half an hour each. Immediately after the fifth dose, the os uteri dilated, and the placenta came away. The girl did well, with the exception of a slight phlegmasia dolens, which yielded to simple remedies.—*American Jour. of Med. Sciences*, May, 1834.

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PART I.
ORIGINAL COMMUNICATIONS.

ART. VI.—*Observations on Erysipelas.* By EPHRAIM M'DOWEL,
M. D., M. R. I. A., one of the Surgeons of the Richmond
Hospital, &c. &c.

- I. General account of the late epidemic Erysipelas.
- II. Its division into three classes of cases.
- III. The symptoms of each.
- IV. Appearances on dissection.
- V. Question considered—whether the disease is contagious?
- VI. Treatment—general; local.
- VII. Cases 1 to 17 with observations.

THE subject of erysipelas being one of practical importance, and the opinions of the profession being divided as to its treatment, I beg leave to submit a few observations on this disease, with cases illustrative of the different forms under which it has been observed during the epidemic attack of it, which still exists in this city.

As far back as November, more than the usual number of cases of erysipelas were observed in the wards of the Richmond Hospital; but within the last three months it appeared to have assumed an epidemic character; has been extremely troublesome, and frequently fatal, both in and out of the hospitals of Dublin; it has attacked all ages and both sexes indifferently, the healthy, and those labouring under biliary derangement, and visceral disease; every kind of injury almost, was followed by it; it occurred after bleeding and leeching, after burns, simple as well as compound fractures, venereal ulcers on the genitals, and in the throat, after the application of blisters, sinapisms, irritating ointments or liniments; it occurred so constantly after operations, that unless when absolutely necessary, they were postponed frequently as long as was compatible with the safety of the patient.

The epidemic erysipelas, like the epidemic influenza which lately visited us, was characterized in many instances by extreme prostration of strength, rendering caution with respect to depletion very necessary, even in cases where high local inflammatory action existed, and the constitution had been previously good. This was strikingly exemplified in the case of a robust looking, but nervous girl, (Theresa White,) who was attacked with spreading erysipelas of the leg and thigh, after the division of the periosteum, for obstinate periostitis of the tibia; it was accompanied with much symptomatic fever. The case was treated antiphlogistically at first, but large gangrenous vesicles became suddenly developed on the toes of the affected limb, (the erysipelas being at a considerable distance,) accompanied by extreme and sudden prostration of strength, vomiting, restlessness, feeble pulse, sunken look, &c. She was saved by tonics and stimulants; and the gangrene was limited merely to a small extent.

During the progress of this epidemic, much variety has been noticed in the number of cases of it at different periods; occasionally it has been nearly extinct in the hospital,

and then unexpectedly has recurred with increased violence ; it has been most troublesome when the wind blew steadily from the east.

The different cases of this disease met with by the writer, were referrible to one of three classes. In the first, occurring in healthy persons, and usually after injuries, there was much local and constitutional disturbance ; the disease was often of the phlegmonoid form, but in other cases, the skin alone was acutely attacked. In the second class of cases, examples of superficial erysipelas, the redness was more diffused, frequently it was not very perceptible, and occasionally considerable patches of the skin were unaffected, passed over, as it were, by the disease ; vesications occurred more frequently than in the more acute cases : this form attacked persons of weak constitution, or of unhealthy habits, in whom the biliary organs and stomach were deranged or diseased : the constitutional symptoms seldom ran high. Subcutaneous abscesses formed very insidiously, and frequently in considerable numbers, and, if not opened early, spread very quickly, death of the cellular membrane to a varied extent generally occurred, undermining the skin, and protracting much the cure. It was often necessary to examine a limb most carefully to detect these purulent depots, the patient seldom being aware of their existence ; the matter secreted was generally healthy pus. In one case of erysipelas of the head and face, succeeding ptyalism, slight pain, or rather uneasiness, had been complained of in the neck ; there was no evidence of disease, but on examination after death, a very extensive *puriform* infiltration of the loose cellular tissue, about the trachea, thyroid body, and œsophagus, was found ; it extended behind the pharynx nearly to the base of the cranium, and very probably was not merely an example of inflammation propagated from the skin, but also from the mucous membrane of the pharynx which was also inflamed. In the diffused inflammation of the fauces in cynanche maligna, we have frequently similar formations of matter deep

in the neck, from extension of disease from the mucous to the cellular tissue. In the third class of cases, the disease occurred in habits broken down by want, intemperance, age, or previous organic disease of long standing, and sinking occurred very early, unless prevented by stimulants. In such cases there was less redness and heat of surface, the affection had more of the character of erythema, with a well defined and raised irregular border ; the pulse was quick and weak, the accompanying fever of the typhoid character, the tongue more or less loaded, dry and brown, or red, dry and scabrous near the apex, with elongated papillæ, the rest of its surface much loaded : this latter condition of the tongue generally indicated more or less of gastric irritation.

It is in this form of the disease, that on examination after death, we constantly find evidence of the previous existence of inflammation of the cerebral membranes, of the pulmonary, and of the intestinal mucous surfaces, the cutaneous affection being in fact but a small part of the disease. Severe rigors, and diffuse inflammation of the throat, of a dusky red colour, with patchy deposition of lymph, and more or less of sloughing, as in cynanche maligna, preceded several severe cases of erysipelas of the head and face. When the scalp was attacked the inflammation generally became diffused, but occasionally, was limited pretty exactly to one-half ; when this got well, it was usual for the opposite side to become affected. Delitescence, or disappearing of the inflammation from one part to reappear in another, was of frequent occurrence. There was a great tendency to the erratic form, particularly in the old, or in persons of broken down constitution.

The beneficial effects of a severe attack of erysipelas on chronic and obstinate disease of the skin, as lupus, I have occasionally seen. During the late epidemic we had another example of this fact in the case of a girl of the name of Moncrief, who had laboured under the disease for several years. When erysipelas is very prevalent, there appears to be also

a remarkable tendency to diffuse inflammation of the mucous membranes of the digestive tube, without any accompanying erysipelas of the skin ; the disease is rapid, the prostration of strength very great, and it often occurs in individuals unable to bear any depletion. I lost two patients by this affection.

CASE I.—James Rafferty, an unhealthy man of a broken down constitution, aged 25, but looking more like 55 ; he had suffered somewhat from venereal, but far more from the abuse of mercury. Twelve months previously he had an ulcer on the penis, followed by bubo, for which he was salivated, and the venereal complaints were removed in a month ; a week afterwards his throat became sore, and he was admitted into an hospital, where he was salivated so profusely that four of his teeth fell out. Rupia and nodes made their appearance, while under the mercurial plan, but the throat healed ; the ulceration, however, soon recurred, and on the 8th of February, the uvula was destroyed ; extensive phagedenic and sloughing ulceration occupied the back of the pharynx and sides of the fauces. On the 4th of March he was attacked by diarrhoea ; on the 8th it was unabated, and was then accompanied by much tormina and tenesmus ; worse at night ; tenderness on deep pressure of the abdomen, bloody stools with slimy mucus, singultus, a dark brown fur on the tongue, rapid and very feeble pulse : death on the 12th.

On examination there was found a diffuse erysipelatous redness of the mucous membrane from the stomach to the anus, the redness most intense near the termination of the ileon, where the membrane appeared abraded in some parts, in others was covered with delicate shreds of lymph, and several small but well defined ulcers had penetrated the mucous membrane ; the mucous follicles in the ileon were enlarged ; no ulceration of the mucous membrane of the large intestines.

CASE II.—James Clarke, aged 40, previously healthy, was admitted on the 20th of February, with a lacerated and contused wound on the outside of the left knee-joint, above the

head of the fibula, about two inches in length and half an inch in breadth; the injury was inflicted by the cock of a horse's shoe twelve days previously; he used the limb with but little inconvenience until the eleventh day after the accident, when pain, stiffness, and swelling were experienced. On admission the wound was sloughy, the matter copious, thin, and fetid, the leg demiflexed, and motion painful; bowels regular. Rest was enjoined, an anodyne diaphoretic draught at bed time, and a large poultice to be applied.

22nd. Free from pain; an abscess below the wound was opened.

23rd. Some starting of the limb; rested badly; pain referred to the calf of the leg and instep; wound cleaner at the edge, but still sloughy in the centre, and the discharge green, offensive, and profuse, that from the incision sanious; tongue white, red and rough at the tip and edge; thirst; pulse natural. Apprehending danger from inflammation of the articulation of the knee, he was directed to take two grains of calomel with half a grain of opium, three times daily.

24th. He had been purged, it was supposed, by the pills; they were omitted, and he got an anodyne draught at bedtime.

26th. Countenance natural, tongue still red and dry at the apex, free from pain, bowels open.

27th. Diarrhœa, griping, tongue as before; wound much improved; granulating, abscess still discharging. Directed two grains of blue pill and two of Dover's powder in pills every fourth hour, and a blister to the epigastrium.

March 1st. Bowels well; free from pain and startings of the limb; œdema of the foot and much stiffness of the joint, which was directed to be gently rubbed twice daily with soap liniment and camphorated mercurial ointment combined.

March 2nd. Much pain in the joint during the night, and hemorrhage from the wound to the amount of about four

ounces ; profuse, thin, and fetid discharge this morning ; slept in consequence of an anodyne draught ; bowels free, pulse natural.

3rd. Diarrhœa. Omit liniment.

R Mucilaginis amyli ℥ij.

Tinct. Opii gutts. xxx. ℥

Fiat Enema statim injiciendum.

4th. Diarrhœa has ceased ; insomnia ; anodyne enema repeated with forty drops of tincture of opium.

6th. Looks worse ; diarrhœa recurred last night ; directed a scruple of pil. hydrargyri and of Dover's powder, in twelve pills, one every fourth hour.

7th. Diarrhœa has ceased ; is much better.

8th. Had a rigor last night ; an abscess has formed on the inside of the joint, extending to the ham ; much matter, thin and unhealthy, evacuated ; recurrence of diarrhœa during the night ; directed chalk mixture with aromatic confection, and to continue the pills.

9th. Sunk look ; tongue more loaded, thirst ; had some perspiration during the night ; skin now harsh, dry, and hot ; abdominal aorta pulsating strongly.

11th. Diarrhœa severe ; discharges from the bowels like chopped spinach ; pulse thready.

R Superacetatis Plumbi gr. iss.

Opii granum. ℥

Fiat Pilula omni 4ta horâ sumenda. Et

R Mucilaginis amyli ℥ij.

Tinct. Opii gutts. xl.

Ft. Enema statim injiciendum : et vesicatorium amplum abdomini applicandum.

Arrow-root, lime-water and milk, and rice-water.

12th. No improvement ; speaks incoherently ; pulse almost imperceptible, eyes glassy ; extreme prostration ; ordered wine and water, coffee and boiling milk, and the following :—

℞ Mucilaginis Gum. Arabici ℥ii.

Aquæ Cinnamonii ℥vi.

Syrupi ℥i.

Tinct. Hyosciami ℥ij.

—— Opii ℥iss.

—— Cinnam. Comp. ℥ij m

Sumat Cochlearia ampla duo 3tiis horis: et repetetur Enema Anodynum.

13th. Died early this morning.

On examination of the knee joint, it was found inflamed, the synovial membrane particularly vascular where it forms the alar ligaments and ligamentum mucosum, and on the fibular side of the patella; absorption of the cartilage at different points; an enamel-like deposit at the bottom of the ulcers of the cartilage. The joint was opened below the external semilunar cartilage; on the head of the tibia absorption of cartilage had also occurred; the membrane was daubed throughout by purulent matter; the mucous membrane of the intestinal canal, from the duodenum to the rectum, was inflamed throughout as in case the first.

There was much variety as to the extent, and rapidity in the progress, of erysipelas; it was usually rapid. The functions of parts attacked by erysipelas, even where there had been no suppuration, or sloughing, were often so much impaired, that a long period elapsed before they recovered their tone; a limb, for example, remaining weak, or powerless, with more or less of cedema, for many weeks after the removal of inflammation.

The local treatment of lacerated and contused wounds appears decidedly to influence the liability to erysipelas, which we found much less likely to supervene, when water dressings with oiled silk were used to the complete exclusion of the means more commonly employed. The exhibition of aloes, James' powder, calomel and opium in combination, after severe local injuries, appears also to be of material service, not only in guarding against erysipelas, but also, I think, in lessening the

danger of tetanus supervening. This combination has long been employed at the Richmond Hospital with this view ; it is continued until all sloughs have been detached, or until the mouth is slightly affected. Some practitioners either doubt, or deny, the existence of morbid appearances in persons dying of erysipelas. I have seldom, if ever, made an examination, whether of idiopathic or symptomatic erysipelas, that morbid appearances, sufficient to account for the symptoms and the result, did not present themselves. The cases which generally terminate fatally at an early period, are those in which the head and face are extensively and severely attacked, and the patient dies comatose. On examination of the head we very generally find much sanguineous congestion in the different tissues from the skin to the brain ; serous infiltration of the loose cellular substance under the scalp, and after lacerated and contused wounds, often a large quantity of a sero-purulent fluid diffused in this situation ; a very vascular and often thickened pericranium ; a vascular dura mater ; the arachnoid sac containing a serous fluid, often in large quantity ; a white or milky appearance of this membrane between the convolutions of the brain (especially on the lateral hemispheres) with abundant sub-arachnoid effusion into the cellular tissue of the pia mater, presenting a gelatinous appearance ; augmented vascularity of the pia mater to a variable extent diffused and patchy ; the sinuses, cerebral veins, jugulars, and right side of the heart much congested ; the cerebral substance firmer or much softer than natural, a section shewing numerous bloody dots. Occasionally the arachnoid itself presents a vascular appearance in spots, as in purpura of the skin, and even an exudation of a red, soft, gelatinous-like lymph, easily scraped off : as in the following case, a patient of Dr. Morgan's, in the Whitworth Hospital.

CASE III.—William Shill, æt. 33, admitted February 10, of rather robust habit, has been in the army for more than twelve years, a considerable part of which time he spent in India, where he had cholera twice ; says his habits are very

temperate ; seven days since was exposed to wet while travelling, and got a feverish attack, with cough, chilliness, headache, debility, and restlessness ; pulse 100, tongue white, urinous exhalation from the body. These symptoms were all nearly removed on the 15th, when his mouth became affected by blue pill he had taken ; this was succeeded by swelling in the right parotid region which increased until the 21st, when erysipelas attacked the face and scalp. On the 23rd, the eyelids were greatly distended ; tongue dry and dark ; frequent chills : cold skin ; delirium occasionally ; pulse 120, and weak : incisions made into the eyelids, and much purulent matter evacuated from the right. He continued in a low lethargic state, with some irritability of stomach, and occasionally passing urine in great abundance. On the 27th, the erysipelas had extended down the anterior and lateral parts of the neck ; pulse 112, and feeble ; vomits frequently ; deglutition difficult ; subsultus ; involuntary stools ; is sensible when spoken to.

March 2nd. Jactitation of arms and legs ; less erysipelas ; refers any pain he feels to the situation of the thyroid body.

3rd. Pulse indistinct ; subsultus ; tongue dry ; extremities cold ; involuntary stools ; his mind continues perfectly sound, as it has been nearly throughout the whole of his illness ; died at 12 o'clock this night ; was sensible to within ten minutes of his death.

On examination there was found, vascularity of the dura mater ; general opacity of the arachnoid, as if touched with nitrate of silver, numerous vascular dots on it, and a thin adventitious layer of a gelatinous-like lymph ; subarachnoid effusion to a considerable amount ; the brain firm, but serous fluid exuding from its sections ; vascular dots not numerous ; fluid in the ventricles ; serous infiltration of the velum interpositum ; black blood in the arteries ; fluid at base of the cranium ; a puriform infiltration of the cellular substance about the trachea and thyroid gland, particularly on right side, extending behind the pharynx ; oedema of the mucous membrane of the arytenoid

cartilages ; atrophy of the right lobe of the thyroid gland ; lungs remarkably white, some old adhesions ; the right lung did not descend lower than the fifth rib ; the inferior lobe was healthy, but flaccid. Was this owing to the condition of the brain, or to pressure on the right par vagum by the puriform effusion in the neck ? There was bronchitis ; chronic enlargement of the spleen ; a large cicatrix on the left lobe of the liver ; some hypertrophy of the yellow substance of the liver, which was easily torn ; gastric mucous membrane softened and vascular, deeply tinged with bile, which was in large quantity in the stomach, also in the small intestines ; inflammation of the mucous membrane of the ileon ; some of the valvulæ conniventes were much thickened ; the membrane was nearly of a black colour for fourteen inches ; there were several oval ulcers with a dark brown surface.

In the following case of erysipelas of the head, face, and neck, the effusion into the tissues was so considerable as to elevate the cuticle of the mucous membrane of the lips and cheeks in the form of very large vesications, containing a yellow and gelatinous-looking fluid ; oedema of the mucous membrane of the arytenoid cartilages also occurred to such an extent, as to form a large pendulous tumour, which falling on the opening of the larynx closed it, and accounted for the sudden and unlooked for death of the patient.

CASE IV.—Robin Harvey, aged 60, admitted Jan. 5, 1833, with a lacerated and contused wound across the vertex of the head, four inches and a half long ; the wound was sloughy, the pericranium detached at several parts, and the scalp itself had been torn up for several inches ; the injury occurred six days before admission. On the 2nd and 3rd day after the injury he had severe rigors, and, for one day, had headach ; on admission he suffered from a short troublesome cough, with slight mucous rale ; had slept but little since the accident ; pulse 114. Head to be shaved, a large poultice, and the following mixture directed :—

R Sulphatis Magnesiae ℥iss.

Infusi Rosæ ℥vij. ʒm

Sumat cochlearia ampla duo 3tiis horis ad alvi solutionem.

Seven hours after his admission, hemorrhage from under the scalp occurred, and continued to such an extent, that it was necessary to stop it with sponge, dipped in spirits of turpentine, introduced under the flap and aided by pressure.

8th. Has raved, and erysipelas has extended ; twenty-four leeches directed to the erysipelatous surface, and a blister between the scapulæ.

9th. The leeches bled very freely, and the blister rose ; had a good night, no raving ; tongue white ; thirst ; increased swelling and tension of the right cheek and neck ; scalp less inflamed ; edges of the wound more retracted and sloughy ; respiration laborious, thirty-one in the minute ; lips livid ; yellow vesications of mucous membrane of mouth ; much debility ; bowels confined ; firm swelling of right upper lid, closing the eye.

R Mist. Camphoræ,

Infusûs Sennæ, an. ℥iv. ʒm

Sumat ℥i. 2dis horis ad alvi solutionem.

Incisions of the lid and of the face were made.

10th. Bowels freed well ; appears better.

11th. Erysipelas has extended over all the left side of the face and neck ; superficial ulceration of the right side of the face, where the incisions were made ; pulse 120, soft and feeble ; great tension, and swelling of the lips ; raving ; sphacelation of the pericranium ; blisters to the inside of the legs ; warm wine and water.

12th, 8 o'clock, A. M. Had a restless night ; pulse 112, small and soft ; respiration short and hurried ; wound dry and sloughy ; appears more debilitated ; erysipelas continues ; a blister was directed to the inside of each thigh. He died shortly after this visit, very suddenly.

On examination, four hours after death, the face much swollen and indurated; extensive yellow vesication on the mucous membrane of the lips and cheeks; the tendon of the occipito-frontalis was found exposed and in a state of slough; intense inflammation of the pericranium, and sloughing of that portion of the membrane covering the right parietal bone; much serous infiltration of the loose tissue under the scalp; fascia of the right temporal muscle in a state of slough; subarachnoid effusion; brain firm and vascular; one ounce of deep-coloured serum in the pericardium; evidences of old pleuritis; lungs slightly emphysematous along the anterior margin; much mucus in the trachea; bronchitis; much frothy mucus of a reddish colour in the lungs; the inferior lobes partially hepatized, sunk in water; slight eccentric hypertrophy of the left ventricle; submucous infiltration of the epiglottis, arytenoid cartilages and aryteno-epiglottidean folds to such an extent as to hang into the upper opening of the larynx and nearly close it. The preparation is preserved in the Richmond Hospital Museum.

In most cases of protracted erysipelas, inflammation of different portions of the gastro-pulmonary mucous membranes was found to have existed, particularly of the stomach, small and large intestines, and of the bronchiæ. The inflammation was most intense at the bifurcation of the trachea, and a frothy sanguineous fluid, often in great quantity, was effused into its smaller ramifications. Gastritis was indicated by epigastric tenderness, frequent vomitings, ardent thirst, and a loaded tongue, dry, red, and scabrous, near the apex; by a rapid pulse with strength so variable, as not to be relied upon as a guide in discussing the propriety of general bleeding. When the mucous membrane of the small intestines was inflamed, there was present abdominal tenderness of variable amount; tympanitic distention and diarrhœa; the pulse frequently but little disturbed; the alvine discharges indicated irritation; there was much jelly-like mucus voided, often streaked with blood, and mixed occa-

sionally with small portions of shreddy lymph, and when the disease extended into the larger intestines, dysenteric symptoms of variable intensity were superadded; the mucous membrane of the cæcum and of the rectum were generally most affected; when there is extensive inflammation of the small intestines, the patient seldom survives sufficiently long for much change of structure in the lining membrane of the large intestines to take place; but in the following case the inflammation in a few days produced much change of structure, altogether in the large intestines.

CASE V.—Patrick M'Cue, aged 40, admitted into the Richmond Hospital, June 25, 1834, from the Whitworth Medical Hospital. On the 18th, erysipelas appeared after the application of a blister to the back part of the neck, which was employed to relieve symptoms indicative of some obscure organic disease of the brain; at this time also, he was under the influence of mercury; the erysipelas appeared first on his shoulders, and continued to spread; on admission into the Richmond, it occupied the head, upper part of the face, and chest; a solution of ten grains of the nitrate of silver to the ounce was brushed on the surface, a blister put on the margin of the disease, and two grains of tartarized antimony with two scruples of super-tartrate of potash in a quart of barley water directed, the half to be taken in twenty-four hours.

26th. The erysipelas has extended beyond the blistered surface, and is passing down the arms: mercurial ointment directed to be applied to the inflamed surface, and thinking it necessary to support his strength, which was much reduced, he was directed wine, and camphor mixture with carbonate of ammonia and aromatic spirits of ammonia.

28th. The head and face are nearly free from erysipelas, which, however, has extended on the arms and trunk: some diarrhoea; a starch enema with thirty-five drops of tincture of opium directed; the ointment spread on lint to be applied only to the parts where the erysipelas continues to extend.

29th. Head, face, front of chest and neck, quite free from inflammation, in other places it has become much paler, and has ceased to extend.

30th. Mouth sore ; recurrence of diarrhœa.

R Confect. Aromat. ℥i.

Aquæ Cinnam. ℥i.

Tinct. Opii gutts. xxx. ℥ Sumat statim.

July 2nd. Erysipelas has entirely disappeared ; pulse good ; diarrhœa checked ; draught repeated.

The diarrhœa recurred on the 3rd, and resisted all the means adopted remove it. On the 5th he had vomiting ; the discharges from the bowels were like coffee ; tongue loaded, red near the apex ; raves occasionally ; sunken look ; involuntary discharges ; died in the evening.

On examination, a considerable quantity of fluid was found in the arachnoid sac, and much venous congestion, particularly on the right hemisphere ; the pia mater injected minutely ; brain very firm ; the right corpus striatum and thalamus considerably larger and much harder than the left, which were of usual size and consistence. Thorax : much fat in the cellular tissue over the sternum, and in the anterior mediastinum ; old and firm adhesions of the lungs, particularly of the left, to the diaphragm ; extensive emphysema of right lung ; carnification of lower lobe of the left ; superior lobe emphysematous at some points ; much congestion of both. Abdomen : a distinct layer of adeps between the sheath of the recti and the peritoneum ; the omentum loaded with fat, which was remarkably granular at its lower part ; much fat in the appendices epiploicæ. Liver large and indurated, closely adherent to the diaphragm ; a dark green and viscid fluid in considerable quantity in the large intestines, which were much contracted ; their muscular coat thickened and gristly ; the mucous membrane throughout presented a sloughy appearance, and was studded with ulcers of varied sizes and depths, with shreds of lymph adherent to many points. Spleen small and friable.

Metastasis of erysipelas is in general denied : although of rare occurrence, it may take place. Some years since, I had an old man under my care with cutaneous cancer of the face, accompanied with scirrhus of the entire of the right parotid gland, commencing in the gland itself, and not in the lymphatic bodies in its neighbourhood, which are so much more frequently affected, and enlarging, absorb the parotid, and ultimately occupy its site. He was attacked suddenly with erysipelas of the head, face, and neck, chiefly engaging the diseased side ; it was ushered in by the usual premonitory symptoms. On the third day the inflammation suddenly and totally disappeared, and symptoms of acute bronchitis supervened. Under this affection he rapidly sunk ; and on dissection, intense bronchitis was found to exist.

With respect to the contagious nature of erysipelas, I have observed nothing in the progress of the present epidemic to satisfy me that it has spread by contagion ; but from what I have noticed in former years, I have no doubt but that it occasionally does so both in and out of hospitals. On this point I was favoured with the following communication from Dr. Brereton of York-street.

“ MY DEAR SIR,

“ According to your desire, I herewith give you an account of some cases of erysipelas that occurred in the Government Temporary Fever and Dysentery Hospital, Kevin-street, of which I was one of the physicians during the epidemic fever of 1826 and 27 ; and think, they will in some degree prove that erysipelas may be contagious, at least in hospitals. The wards were extremely well ventilated and large, so much so, that the one wherein the facts I am now about to mention occurred, contained fifty-five beds. On paying my daily visit, I observed one of the patients who had been admitted with fever some days previously, to be formidably attacked with erysipelas. On the following day, I found the pa-

tient in the next bed seized with it ; on the third day, two patients in the adjoining beds were similarly attacked. I then became seriously of opinion that the disease was contagious, but resolved not to have those already affected removed until I would try the result of another day. On the following morning I found three more in like manner labouring under the disease ; and what makes it more remarkable, they were all similarly attacked in the head and face. I had them immediately changed into another ward where there were no other patients ; they all recovered, and no more erysipelas afterwards appeared."

The treatment adopted in the first class of cases, was general or local bleeding, frequently both were employed ; incisions were made when there was much tension, heat, and throbbing ; calomel followed by some of the neutral salts, when the stomach was irritable, purgative enemata, and saline effervescing draughts. If the disease did not yield, and that symptoms of inflammation of the internal organs manifested themselves, calomel in doses of two or three grains, combined with small doses of opium, was exhibited every fourth or sixth hour, until the mouth was decidedly affected : and cases threatening a fatal termination when once ptyalism was effected, speedily ended satisfactorily. The mercurial affection of the mouth was in general easily controlled by a gargle of the solution of the chloride of lime or soda, with syrup and water ; or by the free application of a lotion of nitrate of silver, twenty or thirty grains to the ounce. The vomiting (although in general sympathetic, in some cases obviously depended upon gastritis) was combated by leeching and blistering the epigastrium, and by the exhibition of calomel and opium, with abstinence from all food ; drink, in sips merely, was allowed.

In traumatic erysipelas, emollient poultices and fomentations were employed ; some were successfully treated with cloths dipped in cold water, and frequently renewed, or covered over with oiled silk to prevent evaporation : if the inflammation

spread, nitrate of silver, in solution, or blisters were employed to arrest or extinguish it. In the second class of cases, general bleeding was inadmissible; leeches, blistering, or the nitrate of silver lotion were generally found sufficient to check the spreading inflammation. Internally, saline purgatives, with small doses of tartarized antimony, or, if the stomach was irritable, blue pill, followed by saline aperients, and afterwards quinine in small doses, was employed; whenever lesion of the vital organs was threatened, mercury was steadily given to affect the system, at the same time supporting the strength by tonics and stimulants. In the third class of cases, it was necessary to prevent sinking by the early and liberal use of wine or porter, beef tea, quinine, carbonate of ammonia, and opium; the latter was often necessary to check diarrhœa, but was contra-indicated when there was much cerebral or pulmonary congestion; it was then necessary to excite powerful and extensive counter-irritation, and to stimulate by sinapisms or blisters.

I shall now make a few observations on the local treatment of erysipelas more particularly. In the treatment of phlegmonoid erysipelas there is now, I hope, but little difference of opinion, as every practical surgeon must be aware of the importance of early and free incision, in arresting speedily the progress of inflammation, giving great and striking relief in a few minutes, preventing sloughing of the fibrous and other tissues, and purulent infiltration of the cellular membrane. By a timely incision severe constitutional disturbance will be prevented, or if it has set in, will be allayed in a few hours. Puncturing, as a substitute for incision in phlegmonoid erysipelas, is comparatively of little use; the depth of incision must be proportioned to the depth to which the inflammation has extended, and the number of incisions proportioned to the extent to which the disease may have been permitted to attain: in the leg, I have frequently been obliged to make three, four, or five incisions, to prevent disorganization of the soft parts. If the inflammation extends beneath a fascia, this membrane must be divided; little benefit will be derived

from a superficial cut ; (see cases 5 and 6). The edges of the divided membrane retract considerably ; previous to division, the vessels being gorged with blood, the colour of the skin is of a deep red ; in a few minutes after the free division of the inflamed part, we find it nearly restored to its natural appearance. In the great majority of cases, if treated promptly, it will be unnecessary to carry our incision deeper than the cellular membrane. The bleeding after incision in this disease is, in general, very profuse, and in a very few minutes many ounces of blood may be obtained : the quantity permitted to flow should always be carefully ascertained, as in many persons of weak or nervous habits, as in drunkards, although there may be intense inflammation, yet little loss of blood can be sustained. When we observe the rapidity with which the blood flows, it appears pretty evident that there is no stagnation of blood in inflamed capillary vessels ; in general moderate pressure controls readily the bleeding, aided by proper position ; torsion, or ligature of a small artery may be required. That there is danger in neglecting the bleeding in these cases is abundantly shewn by the records of surgery. The following case I witnessed ten years since ; and at a more remote period than this, incisions in phlegmonoid erysipelas were constantly practised. A strong and healthy young man was attacked with severe phlegmonoid erysipelas of the leg, after an injury of the patellar bursa ; the limb from the foot to half way up the thigh was enormously swollen, extremely tense, and painful ; there was high inflammatory fever : a free incision was made in the leg through the fascia, which retracted widely after its division ; the parts were much gorged with blood, and disorganization of the cellular membrane and aponeurosis had commenced at one part ; there was profuse bleeding from the entire almost of the cut surface ; the extent of bleeding was not attended to by the person in charge of the case, and in twenty minutes life was nearly extinct ; every plan of stimulation and support was adopted, (except transfusion,) but death occurred in an hour and a half after the operation.

If the disease has been neglected till sloughing of the fascia and diffusion of pus in the cellular membrane have occurred after the necessary incision, lint dipped in spirits of turpentine, or in gum elemi and turpentine combined, should be applied, and an emollient poultice over all. Other local applications will also be found of much service in expediting the separation of sloughs and the processes of reparation, as equal parts of castor oil and balsam of capivi, the Peruvian balsam, or one part of the solution of the chloride of lime or of soda to six or eight parts of water.

In elderly persons, or in those of a weak and irritable habit, we must be guarded as to the extent of incision; it should be limited as much as possible. I have seen cases where ulceration of a spreading character has attacked the edges of the wound, and rapidly produced a large and highly irritable ulcer. If this occurs, the best mode of treatment is to give calomel and opium, or blue pill with cicuta or hyoscyamus, freely, until the gums are touched; afterwards, quinine, ammonia, and nutritious diet; topically, lint dipped in the black wash, with watery extract of opium, and covered with oiled silk; the weight of a poultice frequently cannot be sustained.

When phlegmonoid erysipelas attacks parts containing much loose cellular membrane, as the lids and scrotum, or much adipose cellular tissue, as by the side of the rectum, early incision is demanded. In the former situation, this is particularly to be attended to, as troublesome or incurable ectropium may result if much of the integuments of the lid be lost. In ordinary cases of erysipelas, the pus is found superficial to the orbicularis palpebrarum; in more severe cases, deeper, and if an early and free transverse incision be not made, it will diffuse itself in the orbit, passing through the broad ligament of the tarsus at its inner part, where it is loose and cellular. Early attention to acute erysipelas of the lids is demanded also by the consideration, that it is easily propagated to the conjunctiva, a structure partaking so much of the nature of fine integuments. When this occurs, oedema of this membrane to a great extent occurs, and sloughing of the cornea is endangered. I

have seen an eye lost in this manner in less than forty hours from the commencement of the inflammation of the lid. We should distinguish simple erysipelas of the lid, from the erysipelatous affection indicative of acute periostitis of the orbit; in the latter the eye is protruded, and the tension is very great. It commences by deep and severe pain, and is a much more serious affection, being often connected with cerebritis and inflammation of the membranes of the brain. See *Dublin Journal* for September, 1833, case viii., page 2; and for May, 1834, page 240.

Incisions of the face are rarely necessary, and will generally be avoided, lest of subsequent deformity. I have practised them, however, extensively in some very urgent cases, and when the swelling had completely disappeared, there was hardly a trace of the scalp. In that form of erysipelas of the scalp after wounds, which extends deeply below its aponeurotic expansion, incision is necessary to relieve the constitutional symptoms, which are very severe, the cerebral functions being in general much disturbed, and to prevent sloughing of the pericranium and extensive purulent infiltration of the loose cellular substance. An incision through the scalp renders general bleeding unnecessary, as the bleeding is smart enough, but with care is readily suppressed. Acute phlegmonoid erysipelas about the knee and elbow, from injury of the skin and bursa, is of constant occurrence: it spreads rapidly to the surrounding parts, and requires early incision. From the existence of the bursæ and deficiency of loose cellular membrane, the incisions over the patella, and over the olecranon, are more tedious in healing than in other places; fungous granulations constantly protrude, requiring escharotics and firm pressure. When the scrotum is severely attacked, its bright redness soon becomes livid; a patch assumes the appearance of wet shamois leather; the skin here is dead, and the loose cellular substance to a greater extent; we may save much skin and time by early and free division of the skin and cellular substance.

When acute erysipelas is limited to the skin, leeches will very constantly be found of the greatest service. I have employed them as auxiliaries in the treatment of a very great number of cases of erysipelas with much success, and have never found them to be injurious, either by their increasing the irritation, or causing ulceration or gangrene, which are the objections often made to their employment. It is often necessary to employ tonics and even stimulants to support the strength and rouse the depressed vital powers, while, at the same time, we leech to arrest the progress of the inflammation. Leeching, in severe cases of this disease, should not supersede, but be employed as an auxiliary to general bleeding. Leeches should not be applied to the eyelids, as they may cause ecchymosis, which will aggravate the disease, and may excite purulent infiltration of the orbit, endangering the eye, and the brain.

Blisters are employed in the treatment of erysipelas with different intentions; to excite counter-irritation, and thus relieve internal organs, which are congested or inflamed; to stimulate, when the vital powers are at a low ebb; or to arrest the progress of spreading superficial erysipelas, by direct application to the inflamed surface, or on its margin, encroaching on the neighbouring healthy skin. There can be no doubt of their great utility in cases, where the functions of the brain, of the thoracic, or of the abdominal viscera, are sympathetically disturbed, or when these organs are the seat of inflammatory action, after suitable depletion. When the brain is much engaged with coma, and great prostration of strength, a blister is usually applied to the nape of the neck, or between the shoulders; it will be found more useful to vesicate the inside of one, or of both thighs, a more decided impression appears to be produced on the system, and there is no risk of aggravating the inflammatory condition of the brain, or of its membranes, which a blister on or in its immediate vicinity may do. In some cases it will be necessary, in addition, to vesicate the legs, and apply sinapisms to the feet; in employing the latter applications, at-

tention is necessary, the toes should be avoided, and the poultices should not be permitted to remain on longer than is sufficient to irritate the skin slightly ; the patient is often too comatose to attend to the pain they may excite, and sloughing, or a very troublesome, painful, and tedious ulceration, may result.

To arrest the progress of superficial spreading erysipelas, I have employed blisters to the inflamed parts as auxiliaries, in a great number of instances for several years past, and with much success ; but the cases for its adoption should be carefully selected. When the inflammation is very acute and spreading, although it be limited to the skin, blisters will be found injurious, if the inflammation be not in the first instance lessened by the antiphlogistic plan, modified, according to the age and previous habits of the patient. If the inflammation, although apparently mild, extends into the cellular tissue, forming insidiously a purulent depot, it will not be arrested by this plan, which is totally inadmissible in the phlegmonoid forms of the disease. Blistering succeeds best in the erratic erysipelas, where the inflammation is of a pale colour, existing in patches, with portions of uninflamed skin in the intervals, where there is but little tumefaction or uneasiness, and when proper constitutional treatment has preceded and accompanies its adoption. The inflamed surface for about two inches from the margin, and the surrounding skin for the same extent, should be covered by the blister, which should encircle completely the disease, or it will extend at the unguarded spot. It should be kept on twelve hours in an adult ; the more irritation it excites the more likely it is to succeed. When lymph is effused in place of serum under the cuticle, it never fails, and this is usually the result of a greater stimulation than ordinarily is produced ; should the disease spread, a second blister will generally answer. This plan may appear severe, but the erratic form of the disease is generally so tedious, harassing, and exhausting, that its adoption is fully justified.

The local application of nitrate of silver, either in substance

or in strong solution, so strongly recommended by Mr. Higginbotham, and by others, has been fully tried by the writer in very many cases. It should be applied not only to the inflamed parts, but also to the neighbouring integuments ; it should produce vesication or it is of little service ; the smarting from the application lasts but a short time, and is soon followed by decided relief. On the next day there is generally much diminution of the swelling, the blackened cuticle is much wrinkled, and desquamates in a few days ; it aggravates the symptoms in phlegmonoid erysipelas, and also occasionally in the superficial form in very irritable habits. Some prefer this application to blisters, which, however, will often be found to succeed when the former has failed. Many object to these plans of treatment, but every practical man must be aware of the urgent necessity of arresting the progress of erysipelas, particularly when it affects the head and face, as an inflammatory state of the brain, and its envelopes, accompanied by delirium, and ending in coma, may occur very early if the erysipelas becomes extended.

Lately I have tried the plan of mercurial inunction, as recommended in the *Lancet* of July 14, 1832, page 480, and of September, page 739, and upon the whole am led to consider that it is a most valuable application in this disease. To ascertain as much as was possible the value of this mode of treatment, it has been employed nearly to the exclusion of other remedies, the bowels being merely regulated, and the diet attended to. In two cases where there was much sinking, tonics and stimulants were combined ; in most of the cases, mercury applied in this manner affected the mouth. Understanding that this plan had been used in Mercer's Hospital, I applied to Mr. Reid for information, and was favoured with the following communication :—

“ York-street, Thursday, June 19, 1834.

“ I lose no time in giving you, from memory, the experience I have of the treatment of erysipelas by mercurial

inunction in Mercer's Hospital. I have witnessed the practice both in the idiopathic form, and in the erysipelas consequent to wounds, &c. ; it has been used in both species in the head, and also where the extremities have been the seat of the complaint. I think it is more than two years since this practice was introduced amongst us, and was suggested by the cases related in the periodicals of its success in the hospitals of Paris. It certainly would appear to me from a number of instances to have considerable power in limiting the extent, and generally checking the progress of the disorder ; two, three, or four applications have usually sufficed, but the indications of medical treatment have been at the same time followed up. It has been remarked, that no case with us has died, on whom the practice was tried, and that if not in all, in the greatest number of instances, the patients were salivated : from this it would appear, that the absorbents in the diseased surfaces possessed an increased activity. We have now the case of an old man treated by inunction, admitted last Sunday ; the erysipelas has disappeared, and the mercurial affection of the mouth is the principal cause of his present illness. This was a very unfavourable case ; he received a contused scratch on the forehead a few days prior to admission ; the face, scalp, ears, throat, and neck, were much tumefied on his admission, and the right arm, from the wrist to above the elbow, similarly affected, though there was no local injury of the limb."

The following cases are intended to illustrate the varieties noticed in the epidemic erysipelas, and the treatment adopted :

CASE VI.—*Phlegmonoid Erysipelas from Injury—Removed in nine Days.*

Robert Byrne, æt. 26, a healthy, robust man, admitted Feb. 25, 1834 ; received a severe kick on the left leg six days previously ; on the following day, he was attacked with severe rigors, followed by erysipelas ; the rigors recurred for three

days consecutively, accompanied by nausea, vomitings, and headach. On admission there was much tension, swelling, pain, and diffused redness of a deep hue, terminating abruptly, with a glossy state of surface, extending from the foot to the knee; the symptomatic fever ran high; pulse 118, and full. On the 26th, a deep and long incision was made, in the middle of the leg, at its tibial side; the cellular membrane was approaching to a sloughy state, and matter escaped on the division of the fascia; it was pressed out as from a sponge; the bleeding was so considerable as to render general bleeding unnecessary; the hemorrhage, however, was easily checked by the introduction of a few dossils of lint, and by elevation of the limb.

27th. Great relief experienced soon after the incision; the erysipelas has ceased to spread; the tension and redness are much diminished; pulse 88; tongue still white.

℞ Aquæ Ammoniaë Acetatae ℥vij.

Sulphatis Magnesiae ℥iss.

Tinct. Opii gutts. xl. ℥

Sumat ℥i. 4tis horis.

Supertartrate of Potash, two scruples in a quart of barley water, with sugar, for drink.

March 1st. Swelling and tension subsided; cuticle wrinkled, and desquamating; cellular membrane and fascia in a sloughy state, but the sloughs are being detached, and healthy granulations surround them.

15th. Discharged; wound healed.

No case can more clearly demonstrate than this does, the great advantages resulting from early incision; the appearances were very threatening in the first instance, but were immediately arrested by the free division of the inflamed structures; fever cut short, and sloughing prevented.

CASE VII.—*Idiopathic Erysipelas.*

——— Daly, aged 40, four days ill, a lunatic, admitted December 3rd, 1833, with erysipelas of the head and face; the eyelids and other parts affected were greatly swollen; the

skin red and shining ; numerous vesications, some of considerable size, others have burst ; tongue white and much furred ; pulse rapid ; ardent thirst ; bowels well freed before his admission.

Vesicatorium nuchæ colli ; fomentations, bread and water poultice ; and in the evening an emollient enema.

Dec. 4th. No sleep during the night ; face more swollen and tense ; tongue furred and dry ; bowels opened by the enema ; superficial incisions of the lids, forehead, and cheeks were made ; sinapsims applied to the feet, leeches to the forehead and cheeks ; directed the poultice and stupes to be continued, and a diaphoretic mixture to be given.

5th. Delirious in the evening ; rested badly ; tongue more loaded and chalky-looking ; desquamation of cuticle has commenced ; erysipelas diminished ; the eyelids can be opened ; pulse 96, small and compressible. Blisters to the legs ; enema emolliens ; and the following directed :

R Mist. Camphoratæ,

Aquæ Ammoniæ Acetatae, an. ℥iij.

Spir. Ætheris Oleosi ℥ij.

— Ammoniæ Aromatici ℥ss.

Syrupi ℥ss. m

Sumat ℥i. 4tis horis.

Dec. 7th. Tongue cleaning ; bowels free ; erysipelas declining fast.

12th. Abscesses of the lids ; opened.

17th. Discharged well ; the erysipelas being removed in thirteen days.

CASE VIII.—*Traumatic Erysipelas*.

Michael Doran, aged 26, admitted April 26th, 1834. This man, an habitual drunkard, while in a state of intoxication received on the 20th a blow on the side of the head, which inflicted a small contused and lacerated wound, which was dressed with dry lint and adhesive plaster. On the following day

he had rigors, nausea, vomiting, and bad taste, with feverish heat of the surface, and had passed a sleepless night. On admission, the inflammation occupied almost the entire of the head and face, with vesicles on the side of the nose and on the cheeks; he complained of oppression at the præcordia; tongue white and loaded; pulse 94, full, but compressible; no headach or nausea; bowels opened by medicine yesterday. Head to be shaved; poultice and stupes; a calomel bolus, to be followed by the purging mixture until the bowels were opened; lids scarified.

Nine o'clock, P. M. Became delirious this evening; got out of bed; bowels only freed once; some tremor of tongue and head; at present delirium is high, and his looks wild; tongue dry at the tip; ardent thirst; increase of erysipelas, and colour deeper. Twenty leeches applied to the head, and afterwards a cold lotion.

Vesicatorium Nuchæ Colli.

Enema Olei Ricini cum Spirit. Terebinth.

27th. seven o'clock, A. M. No sleep; bowels not opened; the leeches bled freely, and the blister has risen. Two drops of croton oil given.

Half-past nine o'clock, A. M. More collected; one stool of brown colour; tongue dry and brown; pulse smaller; says he has no headach. Nitrate of silver applied to the inflamed surface.

Three o'clock, P. M. Head hot, extremities cold; pulse 100, and small; a patch of erysipelas on the left elbow; bowels freed twice; is now collected; but little tremor. Ordered sinapisms to the feet, and a blister to the inside of each thigh, and three grains of calomel every third hour.

28th. Raved all night; stools and urine voided without notice; tongue dry and brown; sordes on gums and teeth; continues to rave; hiccup. At three o'clock, P. M., directed spirits and water as a drink: in the evening got some sleep; laborious breathing, perspiration, and passes large quantities of urine.

29th. Much stupor ; head very hot ; subsultus tendinum ; mouth sore ; erysipelas faded ; bowels not opened to day. Omit the calomel.

R Mist. Camph.,

Inf. Sennæ, an. ℥iv. ʒi.

Sumat ʒi. 4tis horis.

Cold lotion, and continue the spirits and water.

Ten o'clock, P. M. Bowels freed three times ; has slept ; is more sensible ; likes and calls for his punch ; will take no other drink.

30th. Pulse 100 ; less subsultus ; tongue dry ; is more sensible ; mouth very sore.

May 1st. Improving ; erysipelas has attacked the nates ; tongue cleaning ; pulse 84.

May 2nd. Gives notice ; refuses the punch ; ordered porter.

3rd. Pulse 70 ; abscess above the left ear opened.

5th. Abscess in each upper lid opened ; ordered wine in addition to the porter.

7th. Abscesses under the scalp, in each temporal region incised ; healthy pus evacuated.

9th. A large abscess on the vertex opened.

13th and 20th. Abscesses of the lower lids opened.

22nd. Convalescent. The disease lasted thirty-one days.

In this case, there was, no doubt, a complication of erysipelas, with delirium tremens ; the state of the brain contra-indicated opium : the moderate antiphlogistic plan, and the extensive counter-irritation employed with mercury, and his accustomed stimulus, whiskey, appeared to have saved him.

CASE IX.—*Division of Periosteum, followed by Diffused Erysipelas of Leg, accompanied by partial Gangrene of the Toes.*

Teresa White, æt. 20, admitted April 4th, 1834, with periostitis of left leg. This girl had exfoliations from the left tibia a year ago, and has suffered ever since from periostitis, the periosteum being much thickened, and having suffered for

a long time without being relieved by mercury, leeching, &c. On the 6th, the membrane was divided to the bone, which was found rough, and the periosteum itself nearly of the consistence of cartilage.

7th. Bowels freed by two purging pills.

9th. Nausea; oppressed præcordium; tongue loaded; bitter taste; chills; erysipelas about the wound.

℞ Pulv. Ipecacuanhæ ʒi.

Antim. Tart. gr. i. ʒ

Fiat pulvis emeticus statim; et enema olei ricini cum ol. terebinth. vespere; fatus et cataplasma amplum.

10th. Erysipelas has extended; more fever; bowels not freed: directed purgative medicine.

11th. Took no medicine, the catamenia being present. The erysipelas extends from the ankle to the knee, the colour in general a pale red, several patches of skin unaffected; nausea and vomiting, headach, rigors, much thirst, severe dorsal pain; wound sloughy. A strong solution of the nitrate of silver applied to the inflamed surface, particularly at the margin; saline effervescing draughts directed, and an emollient enema.

12th. (Third day of the disease.) Has suffered from chills and rigors all night; erysipelas not arrested by the nitrate of silver, but is extending; pulse 106, fluttering and soft; foot and leg to be elevated, and the following immediately:

℞ Sulphatis Magnesiae ʒi.

Pulv. Rhei gr. xxx.

Tinct. Sennæ Comp. ʒii.

Aquæ Cinnamomi ʒi. ʒ

Ft. Haustus. Aqua Hordei ad libitum.

13th. Erysipelas has extended above the knee, and occupies the dorsum of the foot; increased redness and swelling, but little tension; rigors still continue; great thirst, tongue loaded, red and dry at the apex; headach, flushing, hot dry skin; severe pain in the back; pulse 112, small. Nitrate of silver to the foot,

leeches above the knee, and afterwards a blister round the thigh, on the erysipelatous margin, and the tartrate of antimony mixture.

14th. Vomited by the mixture, flushing, restlessness, headach, is hot and feverish, pulse 110, neither full nor hard; arrest of erysipelas, bowels not open.

V. S. ad ℥viii.

R Ext. Colocynth. C. gr. vi.

Calomelanos, gr. iii. ʒ

Fiant Pilulæ duæ, statim sumendæ.

Cold water applied to the leg, simple dressing to the blistered surface.

15th. Blood not buffed or cupped, pulse 120, feeble; oppression of chest, less headach, insomnia, œdema diminished, more abundant and healthy discharge from the incision; bowels freed by an enema last night, catamenia have ceased.

R Carbonatis Ammoniaë ℥i.

Succi limonum q. s. ad plenam saturationem: dein adde

Mist. Camphoratae ℥ii.

Spir. Ammoniaë Aromat. ℥ss.

Aquæ ℥iii.

Syrupi ℥iii. ʒ

Sumat ℥i. 4tis horis.

16th. Vomited once, erysipelas has extended a little on the outside of the thigh, much pain complained of about the foot; slept some, tongue clean and moist, less thirst, bad taste, pulse 112 and small, some headach, great sense of oppression, some cough. A narrow blister to the extended border of erysipelas; eight leeches to the foot, a blister between the scapulæ.

17th. Pulse 100, less oppressed; erysipelas has extended a little beyond the blister, leg pale and flabby, livid patches on, with lessened temperature of the first and second toes. Continue the mixture.

18th. Rested better, the vesicles have spread, and occupy

all the toes, colour livid, violent pain, debility; vesicles punctured, and she was allowed wine.

20th. Erysipelas has disappeared, superficial sloughs on first and second toes, a line of separation established.

21st. Warm dressings (gum elemi and turpentine) to the toes; three grains of sulphate of quinine three times daily.

22nd. Recurrence of rigors, headach, thirst, and of erysipelas on the inside of the leg, and above the knee, bowels confined. Ordered a purgative enema, and bark mixture in effervescence in place of the quinine.

23rd. Sloughs all separated, bowels confined, erysipelas less. *Haustus olei ricini*.

25th. The bowels have been kept open, an abscess which has formed insidiously below the knee, was incised, healthy pus discharged. Bark and wine continued.

28th. Convalescent; the disease having lasted nineteen days.

In this case, the rigors were remarkably troublesome for several days, the sudden suppression of the catamenia, followed by aggravation of the symptoms, both local and constitutional, probably depended upon the V. S. practised on the 14th; the leeching of the foot, (although apparently justified by the increase of erysipelas,) in the irritable habit of this patient, appeared to have tended to the production of gangrene of the toes; the application of the nitrate of silver failed in arresting the progress of the inflammation. The blisters were beneficial; the good effects of tonics and of stimulants, in the latter stages of the disease, both in arresting erysipelas and gangrene, were decided. This case was a good example of the epidemic superficial erysipelas.

CASE X.—Mary Gilfoile, weak and debilitated, æt. 39, admitted 21st January, 1834, with phagedenic and sloughing venereal ulceration of the throat.

February 1st. Attacked with rigors.

2nd. Erysipelas of the face, with large vesications on the

cheeks, pulse rapid, tongue red, and dry in the centre, a white stripe of fur laterally. Directed the antimonial mixture, saline effervescing draughts, and warm fomentations.

4th. Tongue drier and more loaded, increase of erysipelas, eyelids closed; great heat of head, raving, cold extremities, tympanitic and tender abdomen; bowels open, vomiting during the night, singultus, much prostration of strength; pulse 120 and thready. Head to be shaved, feet to be well fomented, a turpentine enema, four ounces of wine diluted with water.

℞ Calomelanos grana duo.

Opii semi-granum. ʒ

Ft. pilula 3tiis horis sumenda.

5th. A blister to the inside of the calf of each leg, and

℞ Carbonatis ammoniæ gr. xxxii.

Misturæ camphoratæ ʒviii. ʒ

Sumat ʒi. 4tis horis.

6th. Vomiting continues; the blister to the epigastrium had not acted, another directed.

8th. Had a good night, vomiting had ceased, singultus continues, abdomen soft, tongue hard, dry, and shrivelled, protruded with difficulty, bowels confined; erysipelas has not extended, less swelling of the face.

Enema emolliens. Contr. pil. Calom. et Opii, et Mist. Camph. ut antea.

16th. Abscess of lid opened; erysipelas disappearing. Pills omitted.

18th. Symptoms of gastritis, incessant vomiting, tender epigastrium; is much sunk, pulse thready. Vesicatorium epigastrio; repeat pills of calomel and opium; enema emolliens; bland drinks in sips only.

21st. The vomiting which had been checked has recurred more violently; bowels confined. Wine omitted; continue pills.

22nd. Bowels open, vomiting has ceased, pain in head and neck, mouth affected. Omit the calomel.

24th. Mouth very sore, mercurial fœtor; erysipelas has disappeared, extensive branny desquamation of cuticle.

Haustus Ricini.

Gargarisma Boracis.

Continued to improve slowly but steadily; the ulceration of the fauces, which was of a formidable character, healed perfectly. The subsequent treatment was tonic, with wine and nutritious diet, regulating the bowels.

March 11th. Discharged well; duration of the disease twenty-three days.

The tartarized antimony, prescribed on the first day of the attack, appeared to have been injurious, by causing too much irritation of stomach, and much consequent debility; and in the majority of the cases of epidemic erysipelas, I observed, particularly in females, great caution was necessary in the use of antimonials, from the tendency that existed to irritability of the stomach: the occurrence of gastritis on the 18th, when the erysipelas was rapidly fading deserves notice. To the mercury, pushed so far as to cause ptyalism, aided by the stimulants employed, and which were indicated by the extreme debility that existed, I attribute the recovery of this case: until the mouth was decidedly affected, the symptoms were very alarming.

CASE XI.—*Fracture of right Leg; Erysipelas, Pneumonia; Recovery.*

Laurence Carney, aged 25, a healthy, robust man, admitted January 18th, 1834; leg fractured very obliquely at lower third, skin abraded, followed by much swelling and tension of foot and leg, accompanied by severe pain and startings; cold applications were applied, leeching employed, and a diaphoretic mixture, with antimonial wine.

22nd. Rested badly, startings of limb troublesome, limb

swollen and shining ; numerous small dilated veins of a greenish blue colour have appeared ; pulse natural.

23rd. Redness in patches, increased heat, tension considerable ; disturbed at night by spasmodic twitchings. Twelve leeches.

℞ Aceti Opii gutts. xv.

Vini Antimonialis gutts. xx.

Aquæ Cinnamomi, ℥i. ʒi.

Ft. Haustus. H. S. sumend.

25th. Increase of swelling and tension. Sixteen leeches.

29th. Passed a bad night ; headach, thirst ; tongue white ; pulse 100, small and feeble, cough troublesome. A moist crepitus was detected on the right side, anteriorly, extending to some distance in the subclavicular and mammary regions, particularly audible under the nipple ; the left side on the same regions anteriorly yielded a sonorous rale : from the difficulty of moving him, the posterior part of the chest could not be examined. Much increase of erysipelas, with more tension and swelling ; vesications above the ankle. Three or four long but superficial incisions were made down the leg ; they bled freely : also V. S. ad ℥xvi. with pills of hippo and calomel, and a blister between the shoulders.

30th. Rested better ; less tension and redness, but the erysipelas has extended above the knee ; burning pain about foot complained of, tongue white, pulse 110, small ; respiration much freer, less cough, more expectoration, blood drawn not buffed, but slightly cupped, clot firm. Continue the pills ; tartarized antimony given in saline draughts, and a blister applied on, and above the erysipelas, encircling the limb.

31st. Pulse 112, small and feeble ; less cough, expectoration of white frothy mucus ; above the right nipple the crepitus is replaced by a sonorous rale during inspiration, and by crepitus in expiration ; much increase of erysipelas on the foot, and at the upper part of the leg, above the incisions ; the scarified parts are free from redness, which, however, has extended above

the blister on the inside of the thigh. Twelve leeches to the foot.

February 1st. Pulse 108, raved a good deal ; erysipelas has reached higher ; vesications more numerous.

2nd. Cough worse ; limb placed on the outside, the heel being tender ; erysipelas extending on the thigh. Contr. pil. 6tis horis ; a blister round the thigh.

3rd. Erysipelas arrested, leg less swollen ; tongue cleaning, pulse 98 ; a sonorous and slight sibilous rale audible over the anterior part of the chest. Contr. pil. 1 4tis horis, and

℞ Tinct. Scillæ,
Vini Ipecacuanhæ,
Tinct. Digitalis,
—— Opii, an. gutts. xxv.
Aquæ Ammoniacæ Acetatae ℥ss.
Syrupi ℥i. ʒ
Ft. Haustus. H. S.

4th. Expectoration of a yellowish white opaque mucus ; bowels irritated. Two grains of calomel, with two of chalk, in pill, every third hour, in place of the former pills.

5th. Cough continues ; leg and thigh better. Blister to the chest ; continue pills.

7th. Gums slightly affected ; a small abscess has burst over the tibia ; edges of opening livid. Pills to be omitted ; appetite returning.

8th. Abscess on dorsum of foot opened ; much healthy pus evacuated ; mouth sorer.

9th. Profuse perspiration last night ; pulse 96, small and feeble. Iceland moss decoction, with dilute sulphuric acid and syrup directed.

14th. Suffers still from pain of foot and ankle, of a neuralgic character, but there is no erysipelas ; bowels regular, cough better, but little muco-puriform expectoration, and it is free ; pulse 84.

Repr. Decoct. Lichens. Islandici, &c.

17th. A small abscess above centre of the tibia opened.

March 4th. Abscesses all healed for some days past; splints discontinued, the fracture being perfectly consolidated.

6th. Able to get up. The erysipelas was of about twenty-eight days' duration.

CASE XII.—*Spreading superficial Erysipelas, terminating fatally.*

John Farrelly, upwards of 60, was operated on by me for extensive cancer of lower lip, and of the cheek, on February 14th. In six days after operation, slight erysipelas appeared about the wound, which was sloughy.

23rd. Erysipelas of face, and of scalp, of vivid red colour; soreness merely complained of; spasmodic twitchings of the facial muscles; pulse 120, and feeble; but little thirst; no vomiting; insomnia; debility; one stool. Head to be shaved; vesicatorium nuchæ colli; twenty grains to the ounce solution of the argentum nitratum to be applied to the inflamed surface; enema emolliens statim; a grain of calomel, rubbed up with white sugar, every second hour; two ounces of wine, with water and the potus tartari, for drink.

24th. Rested pretty well; less soreness of head, erysipelas paler; scalp very hot; thirst; bowels open. Poultice to face.

25th. Erysipelas of head and face vanishing; pulse quick and weak; sunken look. Nitrate of silver lotion again applied.

26th. Erysipelas has appeared on the neck and chest; bowels free; less thirst; looks improved. A narrow blister to be applied on the erysipelatous margin.

27th. Blister rose, but the inflammation has extended both down the back and front of the chest.

March 1st. Posteriorly the erysipelas reaches to the second lumbar vertebra, and in front to the xiphoid cartilage; edge lunated, abrupt, and raised; patches of skin on the neck unaffected.

℞ Sulphatis Quininæ, gr. xii.

Acidi Sulphurici Diluti, gutts. xxiv.

Misturæ Camphoræ, ℥vi. ʒi.

℥i. 4tis horis.

A blister to the margin of the inflamed parts; calomel to be omitted.

March 2nd. The erysipelas has extended beyond the blister at every part, and has reached the sacrum; sunk look; raving; tossing of the arms and bed clothes; wound dry; thirst; extremities warm; pulse weak and rapid. Wine increased in quantity.

3rd. Slept badly; restless and raving; thirst; extremities cold; pulse indistinct; neither vomiting nor headach; pustules on the nose, one has ulcerated; the erysipelas has extended upon the trunk, and down both arms to near the elbows. Bowels opened by an enema; another blister to the erysipelatous margin on the arms.

℞ Carbonatis Ammonię, gr. xxxvi.

Mist. Camphoræ, ℥vi.

Ætheris Sulphurici, ℥ii.

Tinct. Opii, ℥ss.

Spiritûs Ammonię Aromatici, ℥iss. ʒi.

Sumat ℥i. 3tis horis.

Whiskey and water ad libitum.

4th. Raving; retention of urine; moribund. Died in the evening, on the thirteenth day of the disease.

No examination of the body permitted.

CASE XIII.—*Erysipelas succeeding Ulceration of the Throat, and terminating fatally on the tenth day.*

Catherine Ingham, æt. 36, of temperate habits, and apparently of a good constitution, a servant of mine, was admitted into the Whitworth hospital, Drumcondra, under the care of Dr. Morgan, on the 11th January, 1834. For six days previously, she had been ill with cynanche of the sloughing kind,

affecting the right side of the fauces, and edge of the velum, without any eruption. The bowels had been well freed, and the throat much improved by the application of the oxymel æruginis; (this application, when freshly prepared, will be found far superior to any other, in the treatment of sloughing ulcers, particularly of the throat).

On the 10th she was exposed to wet, and was attacked with rigors: on admission pulse 120, feeble; tongue white; skin cool. Got an emetic, and in the evening three grains of blue pill, with five of Dover's powder.

12th. After the emetic, suffered from severe pain in the loins, and the menses, in small quantity, appeared; they had been suppressed for several months; pulse 106; redness of face; head hot; skin dry. Head to be shaved, and cold lotion applied; warm fomentations to the loins, and

℞ Pil. Hydrarg. gr. xii.

Pulv. Ipecac. Comp. ℥i.

—— Antimonialis, gr. vi. ʒ

Ft. Pil. viii. 1 4tis horis.

13th. Bowels confined; face more inflamed and swollen; raving during the night; tongue more loaded; thirst; heat of head; no pain; cold feet. Much relief from a purgative enema; saline draughts ordered, and to continue the pills.

14th. Erysipelas has extended; parts much swollen; vertigo; raved in the morning; frequent rigors; cold extremities; bowels confined. Enema catharticum; sinapisms to the legs; and

℞ Pil. Hydrarg. gr. xii.

Pil. Rhei Comp. ℥i.

Camphoræ, gr. vi. ʒ

Ft. Pil. viii. Sumat unam 4tis horis.

And

℞ Carb. Ammoniæ, ℥ i.

Succi Limonum, q. s. ad saturationem plenam; adde

Aquæ, ʒvii.

Mist. Camphoræ, ʒi. ʒ

ʒi. post pilulam singulam.

15th. Pulse 104, more distinct; less erysipelas; tongue clean; surface warm; bowels free; mind clear.

Pil. Hydrarg. gr. v. H. S.

16th. Pulse weaker, 108; still further diminution of erysipelas; occasional rigors, and raving; some perspiration; much debility complained of; bowels confined; erysipelas of leg, from the sinapism. To be poulticed; pills directed on the 14th to be continued, and

℞ Aquæ Ammoniacæ Acetatae,
Mixture Camphoratæ, an. ℥ii.
Solut. Tartratis Antimonii, ℥ii.
Tinct. Opii, gutts. xxx. m
℥i. 3tia hora.

18th. Since last report has had profuse perspirations, and much pain in the loins; pulse very indistinct; tongue white and dry; restlessness; debility; insomnia; slight cough; bowels freed by an injection. On examination bronchitis was found to exist. Pills of hippo, calomel, and squill directed, with the citrate of ammonia; hippo wine and camphor mixture.

Vesicatorium inter Scapulas.

Enema Terebinthinæ vespere.

Erysipelas has appeared on the left shoulder and arm; insomnia; debility. An anodyne draught, and small doses of quinine.

20th. Pulse 128; rested better; mind more intelligent; hip inflamed. Allowed a little wine and water.

21st. Pulse 120, and indistinct; insomnia; involuntary stools; tympanitic abdomen; occasional vomitings of dark green matter; general restlessness; jactitation of the arms; feet swollen; blistered surfaces of the legs have a dark foul appearance. Ordered carbonate of ammonia in effervescence, with tincture of opium; a pill of two grains of calomel, and half a grain of opium, every fourth hour; and a blister to the epigastrium.

22nd. Constant vomiting of matter like coffee grounds; subsultus; no pulse; tense and swollen abdomen; diarrhœa; mind perfectly intelligent. Died this day, the tenth from the appearance of the disease.

On examination, next day, the body was found much emaciated; numerous livid spots on the surface, abdomen tympanitic.

Head.—Much fluid in the arachnoid sac; brain very watery, almost diffuent; much fluid between the convolutions and in the ventricles.

Thorax.—Old adhesions of the left lung, recent of the right, which was much gorged with blood; bronchitis.

Abdomen.—*Stomach.* Mucous membrane of a very dark colour, soft and pulpy; in the lower part of the ileon and transverse colon, numerous and extensive ulcerations, penetrating the mucous and muscular coats; the corresponding portion of serous membrane much thickened; liver soft, friable, and hypertrophied; gall bladder much distended with dark-coloured bile; spleen enlarged and softened; uterus swollen, and its texture much softened; a large quantity of a yellowish and very fetid fluid in its interior.

In the following cases the plan of mercurial inunction was adopted.

CASE XIV.—Bridget Keogh, aged 26, admitted May 10th, with an ulcerated burn of the right leg; on the 26th rigors and nausea; on the 27th erysipelas appeared, which continued to extend, and on the 29th occupied almost the entire of the thigh, leaving some patches unaffected; colour, deep red; considerable symptomatic fever, and much soreness complained of. The inflamed surface to be covered with mercurial ointment.

30th. Inflammation has not extended; tongue loaded; bowels confined. Purging mixture directed.

July 1st. Catamenia being present, did not take the mixture; recurrence of rigors, and extension of erysipelas, both

superiorly and inferiorly; vesications forming; tongue more loaded; bowels still confined. A castor oil draught ordered; ointment continued.

2nd. The erysipelas has extended nearly to the ankle; large vesications on inside of the thigh; increase of fever; bowels very open; pulse quick and full; abdominal tenderness. Ordered a diaphoretic mixture, with tincture of opium, and

V. S. ad $\frac{3}{4}$ xii.

The ointment only to be applied to the spreading inflammation.

3rd. Restless night; less fever; nausea; bowels open; pulse 96, less full; erysipelas stationary. In the evening diarrhoea and tenesmus; restless; raves. An anodyne enema administered; limb elevated.

5th. Improved; much of the erysipelas has disappeared, and what remains is much paler; some diarrhoea has continued; tongue cleaning; rests well; mouth very sore. The mercurial ointment removed; the nitrate of silver in substance applied freely to the borders of the erysipelas, and to any patches remaining; arrow root and milk for food; an enema of mucilage of starch, with tincture of opium.

6th. Much better: little trace of erysipelas; tongue cleaning; bowels regular; pulse quiet. Beef tea and arrow root for diet.

℞ Sulphatis Quininæ, gr. xii.

Acidi Sulphurici Diluti, gutts. xxiv.

Mist. Camphoræ, $\frac{3}{4}$ vi.

Tinct. Cardamomi Comp. $\frac{3}{4}$ i. ℥

Sumat $\frac{3}{4}$ i. ter in die.

8th. Convalescent.

CASE XV.—Anne Conway, aged 30, admitted May 14th, 1834, with chronic ulceration of the leg; erysipelas set in on the 17th, preceded by severe rigors on the 19th; had nausea and vomiting during the night. On 20th, tongue furred, extend-

ing erysipelas reaching from the patella to the ankle, abruptly ending above, gradually shading off below; the colour is in general of a dusky red, with pale spots interspersed; much tenderness and heat of surface. Leeches were applied yesterday, but drew little blood; skin hot and dry; no discharge from the sores. Mercurial ointment to be applied.

21st. Some extension of the redness on the inside of the thigh, but in general it has much subsided. Saline purging mixture directed.

22nd. Disease extending above; healthy discharge from the ulcers.

24th. Still slowly travelling upwards; vesications over the patella.

28th. Mouth affected; inflammation arrested.

29th. A patch of erysipelas near the trochanter. Ointment applied.

30th. Extension of inflammation; nausea; sore mouth. Gargle of the chlorate of soda with syrup.

℞ Confect. Aromat. ℥i.
Tinct. Opii, gutts. xx.
Aquæ Cinnamomi, ℥i. ʒi. ʒi.
Fiat Haustus, statim sumendus.

Ointment omitted.

July 2nd. No extension of disease; debility. Quinine ordered.

3rd. Erysipelas again extending, it occupies the gluteal region to within two and a half inches of the crest of the ilium; leg and thigh free; tongue coated with a dark drab-coloured fur; this fresh attack accompanied by frequent nausea, vomiting, and diarrhœa: no abdominal tenderness.

℞ Mist. Cretæ, ℥viii.
Tinct. Opii, 3i.
Spir. Lavandulæ Comp. 3ss.
Syrupi Zingiberis, ʒiii. ʒi.
℥i. post sedes singulas liquidas.

5th. Erysipelas still extending ; the border rubbed with nitrate of silver in substance ; cessation of vomiting and diarrhoea ; tongue loaded and brown ; pulse very feeble. Ordered

R. Mist. Camphoræ ℥vi.

Carb. Ammoniae gr. xxiv.

Ætheris ℥ii. ʒ

℥i. 4tis horis.

7th. Improving ; inflammation fading ; tongue clean ; bowels regular ; pulse stronger ; strength increased. In a few days afterwards was able to leave the hospital perfectly recovered.

CASE XVI.—Eliza Killeen, æt. 40, was admitted with a tubercular and phagedenic ulceration of the upper lip and left commissure, of three weeks' duration.

On 15th and 16th of June, attacked with rigors and nausea.

On 18th, face greatly inflamed ; of a dusky red colour ; much tumefaction and induration of lips and cheeks ; suffers much pain ; raved all last night ; tongue white and furred ; ardent thirst ; bad taste ; pulse weak, not much quickened ; bowels confined. Mercurial ointment to the face ; bowels to be freed by enema.

21st. Extension of erysipelas to the scalp. Ointment smeared thickly over all the inflamed parts.

22nd. Much better ; erysipelas has faded considerably ; is salivated. Omit ointment.

24th. Inflammation gone. A gargle directed.

29th. Mouth nearly well ; original disease almost entirely removed.

CASE XVII.—Margaret Loftus, aged 46, weak and emaciated : admitted July 8th, 1834, with erysipelas of the face, forehead, and ears ; tremors ; cold clammy perspiration ; loaded tongue, and pulse indistinct. Previous history :—was first affected six weeks ago with heaviness, stupor, and darting pains

in the head ; the erysipelas commenced six days since ; the headach has been relieved within the last two days ; the bowels have been confined for six weeks past. A large emollient enema directed to be administered with the long tube, and syringe, and the erysipelas to be dressed with mercurial ointment.

9th. Bowels well freed ; tongue loaded ; great thirst during the night ; inflammation paler ; no tremors ; pulse quick.

10th. Diminished erysipelas ; thirst ; loaded tongue ; quick pulse ; rests well.

11th. Mouth very sore ; bowels free ; erysipelas only occupies the right side of the face. To this nitrate of silver was applied, and all the ointment carefully washed off.

12th. Mouth very sore ; ulcerated. Solution of nitrate of silver applied to the ulcers, and a gargle, with the chlorate of soda directed.

15th. Erysipelas has disappeared ; diarrhœa, and mouth very sore ; these effects of the mercurial application were removed, and on the 21st July she was discharged.

In several other cases of erysipelas, I have found the mercurial inunction very efficacious, and would venture to recommend, that this plan be more extensively adopted than it has hitherto been, at least in this country.

ART. VII.—*On the Diagnosis of Fractures of the Neck of the Femur*. By ROBERT WILLIAM SMITH, A. M., Licentiate of the Royal College of Surgeons, Curator to the Museum of the Richmond Surgical Hospital, &c. &c.

(Read at a Meeting of the Surgical Society of Ireland, April 5th, 1834.)

NOTWITHSTANDING the accuracy and minuteness with which the symptoms of fracture of the neck of the femur have been detailed by all practical writers upon surgery, it must, I think,

be confessed, that scarcely a month elapses without a case being presented to the notice of the surgeon, upon which he finds it very difficult to pronounce, as to whether the neck of the bone be broken or not, and that the injury is too often confounded with contusion, or some one of the dislocations of the hip. The serious consequences which may flow from such an error, and the circumstance of my having observed a great number of cases, and performed numerous dissections of this fracture, have induced me to lay before the profession the following remarks, in the hope that they may remove some of the obscurity, which so frequently attends the diagnosis of the injuries of the hip joint. It is not my intention to enter at large into the consideration of all the symptoms of the accident ; I propose speaking merely of those which are most characteristic, and shall confine myself to the alterations which the limb suffers, with respect to length and position, when the neck of the thigh bone is broken ; I shall notice, also, the partial fracture of the neck of the femur, and conclude with a short account of the symptoms and pathology of a peculiar disease of the hip joint, which, when present, greatly modifies the symptoms of fracture.

The shortening of the limb is a symptom deserving of careful attention, and to be considered both with respect to its degree, and the period of its occurrence ; nor should we forget, that under certain circumstances, the length of the limb suffers no diminution. The degree of shortening has by all writers been considered as a diagnostic mark between fracture within, and that external to the capsule of the joint, but they are by no means agreed, as to which of these accidents is attended by the greater amount of shortening ; the decision of this question is an object of no trifling importance, inasmuch as it influences materially both treatment and prognosis. Sir Astley Cooper, “*dont l'autorité est si imposante en chirurgie,*” states, that in the fracture within the capsular ligament, “the leg becomes from one to two inches and a half shorter than the other, for the connexion of the trochanter major with the head of the

bone, by means of the cervix, being destroyed by the fracture, the trochanter is drawn up by the muscles, as high as the ligament will permit, and consequently rests upon the edge of the acetabulum, and upon the ilium above it," and when speaking of the fracture external to the capsule, he says, "in this accident, the injured leg is shorter than the other, by one-half to three quarters of an inch." With this statement I cannot agree, so completely opposed is it to the result of my experience; nor can I conceive it possible, that the capsule of the hip joint (very different indeed from that of the shoulder) could admit of displacement to the extent of two inches and a half, without being extensively torn, an occurrence very rare indeed; and if, as is frequently the case, the fibrous reduplications, which constitute the periosteum of the neck of the bone, remain entire, or nearly so, retraction may be almost completely prevented.* In the thirteenth volume of the *Medico-Chirurgical Transactions*, Mr. Stanley observes, "In the several instances of recent fracture of the neck of the femur within the capsule, I have found a considerable portion of the synovial and fibrous covering of the bone entire, and the extent of its laceration has obviously influenced the degree of displacement in the limb; this covering remaining entire, on either side of the neck of the bone, must counteract the shortening of the limb." In his *Practical Observations in Surgery*, Mr. Earle, when treating of this subject, remarks, "when broken within the articulation, or near the head of the bone, very little or no retraction takes place at the moment of the accident, the contrary to this may be observed with respect to fracture external to the capsule; with respect to the shortening of the limb to the extent of two inches, as I have never witnessed such an occurrence, I cannot but conceive that there must be some inaccuracy in the statement, more especially when the great strength and unyielding nature of the capsular

* See Plate, fig. 1, and No. 2, in the Table, p. 209.

ligament are considered, the utmost extent of which, at its upper part, does not exceed more than two inches from its origin to its insertion; in addition to which, in the majority of cases, there is considerable resistance afforded by the undivided portion of the fibrous membrane or periosteum."

These are likewise the opinions, every where expressed in the lectures of Boyer, who remarks, "it is easy to conceive, that in a fracture of what is properly the neck of the femur, the orbicular ligament may oppose the derangement;" again, "it rarely happens that the heel is placed above the ankle, except, however, when the fracture is outside the articulation, and the longitudinal derangement very considerable; in fracture of the part, strictly called the neck, it would be necessary, in order that the ankle should be so placed, that the fracture had been produced by a fall upon the feet or knees from a great height, and that the orbicular ligament had been extensively torn." But when the fracture is external to the capsule, there is an opportunity for retraction occurring to its greatest degree, there is, in fact, nothing to prevent the full force of muscular action upon the lower fragment of the bone, while at the same time the upper is forced downwards by the weight of the body, so that from these two causes, a degree of shortening may be produced, equal to or even greater than the entire length of the neck of the bone.

There is, however, one case, in which the retraction may be but slight, although the fracture is external to the capsular ligament: it is that in which the upper fragment is driven a short distance into the cancellated texture of the lower, the ascent of which it not only prevents, but sometimes renders the restoration of the limb to its original length, by extension, a matter of extreme difficulty; however small the distance may be, it is yet sufficient to counteract the force of the muscles, which tend to draw upwards the lower fragment; in such a case, the degree of shortening will be much less than that which is usually the result of fracture external to the capsule; that such is the rela-



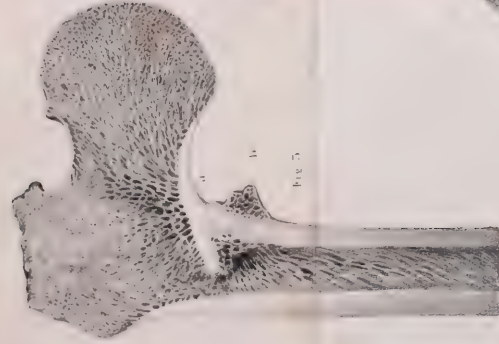


Fig. 5.

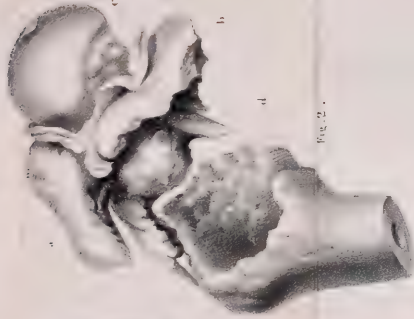


Fig. 2.



Fig. 1.



Fig. 4.

tive position of the fragments, we have reason to suspect, whenever unusual difficulty is experienced in detecting crepitus and extending the limb to its original length.

Let us now turn from reasoning to facts, and we will find that the latter confirm what the former would lead us to anticipate. In the museum of the Richmond hospital, there are fifteen examples of fracture of the cervix femoris, thirteen of these are taken from patients who died in the hospital, the degree of shortening in each case was carefully noted, and every precaution taken to insure accuracy of measurement; the following table shews the age and sex of the patients, the situation of the fracture, and degree of shortening.

NO.	AGE.	SEX.	SITUATION.	SHORTENING.
1	36	Male.	Internal.	$\frac{3}{4}$ Inch.
2	48	Do.	Do.	$\frac{1}{3}$
3	74	Do.	External.	$1\frac{1}{3}$
4	80	Female.	Internal.	$\frac{1}{2}$
5	80	Male.	External.	2
6	70	Female.	Do.	$1\frac{1}{2}$
7	75	Do.	Internal.	1
8	80	Do.	Do.	$\frac{1}{2}$
9	60	Do.	Do.	$1\frac{1}{2}$
10	82	Do.	External.	$\frac{3}{4}$
11	78	Do.	Internal.	$\frac{1}{4}$
12	80	Do.	Do.	$\frac{3}{4}$
13	90	Do.	Do.	$\frac{1}{2}$

From this table it appears that, with the exception of No. 9, the shortening did not exceed one inch in any case of intra-capsular fracture, and reached that extent in only one instance, nor, with the exception of No. 10, was it ever less than one inch and a half in the extra-capsular fracture. With respect to No. 9, the fracture at the time the measurement was made, had existed for years, and the neck of the bone was absorbed, so that the degree of shortening was of course considerable. With respect to No. 10, I shall relate the particulars of the dissection: the neck of the bone was broken at its base, external to

the capsule, and was forced a short distance, about three quarters of an inch, into the cancelli of the shaft, between the two trochanters, it was firmly impacted, and the line of fracture remarkably obscure ; the trochanter minor was broken transversely, the line of fracture passing at right angles with the shaft of the bone, but without detaching any part of the process ; the descending ramus of the pubis was broken obliquely, the fracture passing downwards and inwards from the thyroid foramen. The patient, a female, 82 ætat. was thrown down by a cart loaded with hay, the horse and cart were stated to have both passed over her ; she died upon the fourth day after the injury. In this case the slight degree of shortening may, I think, be fairly referred to the manner in which the fragments were disposed of with regard to each other, and the firmness with which the upper was impacted in the lower, by which muscular force was completely counteracted. It seems probable that the difference of opinion which exists upon this point, is in some measure owing to a proper distinction not having been made between the shortening which comes on during the first two or three days after the accident, the result of muscular action and removable by extension, and that which we notice at a later period, the consequence of absorption, and permanent. Indeed, the period at which shortening occurs is subject to great variety ; it may manifest itself instantaneously, immediately after the receipt of the injury, and that to a considerable degree ; in such cases I have generally found a comminuted fracture external to the capsule. Sometimes the shortening does not become evident, until perhaps four or six days after the accident ; in such cases the muscles have been paralysed by severe contusion ; according, however, as they recover their tone, the limb is slowly shortened, and this independent of any process of absorption. Again there are cases in which the retraction, slight at first, becomes at the end of a month or six weeks considerable ; No. 11, in the table, was an instance of it : the shortening which at first was only a quarter of an inch, at the expiration of six weeks amounted to one inch

and a half ; it was found after death (which took place about two months after the accident) that the neck of the bone was absorbed. Lastly, there are instances in which the limb retains its natural length for many weeks, and then becomes shortened, not gradually, but suddenly ; these are the cases in which diagnosis has been found so very difficult. The cause which has produced the fracture is, in general, comparatively slight, and the patient has made no attempt to walk after the receipt of the injury ; the eversion of the foot is by no means so well marked, as when the shortening occurs early, nor is there much, if any, change in the position of the trochanter ; the patient, no doubt, is unable to raise the limb *en massè* ; but from this we can draw no certain conclusion, as it may be owing to a paralysed state of the muscles. If we can ascertain crepitus, the diagnosis is no longer difficult, if we cannot, we must only watch the progress of the case attentively, and if, after a period of two, three, or four weeks, the powerless state of the limb continues, we have reason to suspect some more serious injury than contusion ; the eversion of the foot is now more clearly marked, and now also it frequently happens that the limb becomes shortened suddenly ; the knowledge of this fact is not unimportant, as it usually indicates a fracture within the capsule. In the first case in which I observed it, it took place, at the end of three weeks ; in the second, after the lapse of six, when the patient, having left his bed and attempted to walk, the limb (which up to this period retained its natural length) became suddenly shortened : the circumstance has been observed by Sabatier, occurring twenty-three days after the accident. In these instances we must suppose, that at the time of the accident, the close coverings of the neck of the bone having escaped without injury, prevented the retraction of the limb, but that subsequently they were torn, either in consequence of some imprudent exertion on the part of the patient, or too eager a desire on that of the surgeon to ascertain crepitus by powerful extension and rotation of the limb : the retraction then takes place as the immediate consequence of their laceration.

In his Observations on Fractures of the Thigh, Mr. Amesbury remarks, "I have seen three cases in which sudden retraction took place in a few days after the accident, in consequence of the incautious manner in which the parts were examined, which, in fractures within the capsule, can, it seems to me, only be accounted for upon the supposition that the investing membranes were then greatly lacerated, or entirely torn through.

In the second volume of his Clinical Lectures, the Baron Dupuytren makes the following observations, which bear closely upon the point under consideration, "c'est encore ainsi que le déplacement des fragmens ne s'est fait qu'au bout de quelques heures, de deux, trois, cinque, dix et meme trente jours, par suite de quelques mouvemens du malade, ou bien pendant que l'on faisait des recherches pour s'assurer de la nature de la maladie. Quelle est la cause de cette particularité que les auteurs ont signalée, que j'ai moi-même observée bien des fois, et dont Sabatier, dans un Mémoire à l'Académie de chirurgie, a cité de nombreux exemples ? Elle tient à ce que la fracture a lieu dans la capsule articulaire, que les fragmens sont restés en place, et qu'ils sont reçus, agencés l'un dans l'autre, l'inférieur prenant un point d'appui sur le supérieur. Mais, dira-t-on, comment se fait-il qu'au bout d'un temps plus ou moins long ils s'abandonnent, et que la fracture devienne évidente ? C'est parce que les rapports des fragmens changent, ou par le poids du corps, ou par l'action musculaire, ou par l'usure de quelques parties de ces fragmens. Le raccourcissement et la déviation du membre qui sont les suites de ce déplacement des fragmens ne laissent alors aucun doute sur la fracture, s'ils ne reconnaissent pas d'autre cause qu'une chute depuis quelques jours. Les deux signes précédens ne se montrent quelquefois qu'après cinquante, soixante, quatre-vingts jours de traitement par le repos et l'extension, ce qui provient de ce que le cal a cédé à la contraction des muscles ou au poids du corps."

Now what is the exact nature of the accident here referred to ? Is it a fracture within the capsule, in which the close co-

verings of the neck of the bone, having escaped unhurt at the time of the accident, have been subsequently torn? or is it a partial fracture, subsequently rendered complete? I am inclined to think that it is the former, and that it is the periosteum of the neck of the bone which yields in consequence of too rough an examination upon our part, or improper exertion upon that of the patient; not the callus, which in fracture within the capsule, I am convinced, from numerous dissections, is not effused in such quantity, as to be in the least capable of counteracting muscular contraction. If the opinion, that in these cases, the fracture is intra-capsular, be correct, I think we must reject the explanation offered by the chief of the Hotel Dieu.

The next symptom which I propose considering is the position of the foot, and here I may observe, that there is no injury as to the nature of which we shall be more frequently deceived, if we form our diagnosis from the presence or absence of any one particular symptom, than fracture of the neck of the femur, nor is it unimportant to ascertain whether there has been any previous affection of the hip joint. We have seen that the alteration which the limb usually suffers with respect to length, cannot aid us in forming our opinion in every case, as it does not always occur immediately after the accident: so is it with respect to eversion of the foot; we cannot pronounce that the bone is broken, because this symptom is present; neither from its absence can we infer the non-existence of fracture, for it is now well known, that the foot may be turned either inwards or outwards, or remain unaffected by the injury. The following case will serve to show the uncertainty of eversion, as a diagnostic sign, not only when separately considered, but even when combined with a shortened state of the limb. A woman of advanced age was admitted into the Richmond Hospital, having received an injury of the hip joint, by a fall upon the trochanter; on examination, the patient having been placed in the horizontal posture, the affected limb was found to be one inch shorter than the sound one; the foot was everted, and the thigh could not be

flexed upon the abdomen, as long as the leg was extended upon the thigh ; the pain and contusion about the joint were considerable. These symptoms were quite sufficient to justify the opinion that the neck of the femur was fractured ; but upon endeavouring to ascertain crepitus, I found it quite impossible to extend the limb to its natural length ; this of course raised a doubt as to the true nature of the injury, and made me suspect that there had been some previous affection of the joint. Upon being questioned, the patient stated that she had long been subject to pain and stiffness in the joint ; that the pain was affected by the weather, being worse in damp, foggy seasons ; that it was relieved by a night's rest, but increased towards evening, and that she had gradually become lame, her general health being unimpaired. It was now, therefore, evident, that the case was one of severe contusion of a joint, previously affected by *morbus coxæ senilis*, a disease of frequent occurrence in old people, and one which produces shortening of the limb and eversion of the foot.

Nor is it only with regard to the nature of the injury which the hip joint has sustained, that the presence of this peculiar affection may deceive us ; for even though the neck of the bone be undoubtedly broken, we may fall into error as to the seat of the fracture, and find it almost impossible to say whether it is within or without the capsule, because the degree of shortening can no longer guide us, as part of it must be ascribed to the absorption which the neck of the bone suffers in this disease ; however, in all the cases that I have seen, in which the fracture was complicated with this affection of the joint, the injury has been external to the capsule.

Let us now consider those cases, in which the foot is more or less inverted, a state first noticed by Parè and Petit ; in the 13th vol. of the *Medico-Chirurgical Transactions*, a paper has been published by Mr. Guthrie, in which he thus endeavours to explain its occurrence : “ When the fracture has taken place in such a manner, as to be external to the insertion of the rotators outwards, yet sufficiently within that of the *glutæus medius*

and minimus, so as not to deprive them of their due action, the toe will be turned inwards, and must always be so, or remain without any change of position, according to certain variations in the inclination of the fracture affecting the power of these muscles." This explanation may suffice, as far as regards fracture external to the capsule, in which alone, according to Mr. Guthrie, can inversion of the foot occur, for the third inference which he draws from his observations is, "that inversion of the foot does not take place in fracture within the capsular ligament, and that this symptom is rather diagnostic of fracture through the trochanter major, a portion of it being continuous with the shaft of the bone." But in the same volume, we find recorded by Mr. Stanley, a case of fracture within the capsule, accompanied by inversion of the foot, and I have myself seen an instance of the kind. In his remarks upon the case, Mr. Stanley observes: "in the instance of fracture within the capsule, the portions of synovial and fibrous membrane which had escaped laceration upon the anterior side of the neck of the bone, might probably prevent the limb from being turned outwards, but why it should have been turned inwards, I confess myself at a loss to explain." Although I can scarcely admit, that the circumstance of the fibrous membrane remaining entire upon the front of the neck of the bone, would prevent eversion, (for I have seen many instances to the contrary,) yet as to the state of inversion, I am equally at a loss to account for it, as a symptom of fracture within the capsule. I have seen three cases of fracture of the neck of the femur, accompanied by inversion of the foot, in one of which, the injury was within the capsule. These cases cannot be considered with too much attention, as they are particularly liable to be confounded with dislocations, and the consequences of such an error have been fatal.

In the paper of Mr. Stanley's already alluded to, the following remarks occur: "among the more complicated injuries to which the hip joint is exposed, that of fracture of the trochanter major, combined with fracture of the neck of the bone, has,

under certain circumstances, a strong resemblance to dislocation of the bone. Whenever the fractured portions of the trochanter can be brought into contact, a crepitus will be perceived, which will enable the surgeon to ascertain the precise nature of the injury; but when, from the direction of the fracture, one portion of the trochanter has been drawn by the action of the muscles towards the sciatic notch, no crepitus may then be discoverable; a direct source of mistake will then arise from the positive resemblance of the fractured portion of the trochanter to the head of the femur, the former occupying the same place, which the latter would do in dislocation, and if, with these circumstances, there should happen to be inversion of the injured limb, the difficulty of diagnosis must be considerably increased."

The following case completely illustrates the preceding observations. Patrick Murphy, æt. 80, was admitted into the Richmond Hospital, February 18th, 1832, for an injury of the hip, caused by a fall, and attended by the following symptoms: considerable tumefaction and ecchymosis about the joint; the injured limb was two inches shorter than the sound one; the foot was inverted, the limb in the state of adduction; a large long tumour could be felt upon the dorsum of the ilium, a little above the sciatic notch, resembling somewhat in its form, the head of the femur; the shortening of the limb could not be perfectly removed by extension.

Here, therefore, was a case more likely than any other to be confounded with dislocation upon the dorsum ilii, from which, however, by attentive examination, it was distinguished, for the thigh could be flexed upon the abdomen, the shortening of the limb, partially removed by extension, recurred when the extending force ceased, and finally the tumour upon the dorsum ilii did not follow the motions given to the thigh: it was therefore looked upon as a case of fracture through the neck of the bone and trochanters. The presence of *morbus coxæ senilis* was inferred, from the patient having stated, that he had long been subject to pain in the joint, that he limped when walking, and

that of late the affected limb had become shorter than the other. He died about fourteen days after the accident. Upon examination of the joint, the following appearances were observed: a transverse serrated fracture external to the capsule, at the line of junction of the neck with the shaft of the bone; a second fracture had completely detached the great trochanter, which was enlarged and drawn towards the sciatic notch, carrying with it the insertions of the pyriformis, gemelli, obturator, and a large portion of the glutæus maximus; a third fracture had detached the trochanter minor, carrying away the insertions of the psoas magnus, and iliacus internus; a hard, polished, ivory-like substance was deposited around the head of the bone, at the circumference of its cartilage.*

I have seen only one example of fracture more extensive than the above: in the case to which I allude, the neck of the bone was broken external to the capsule, both trochanters detached, the greater broken into two portions, the posterior surface of the femur between the two roots of the linea aspera detached, and a number of loose fragments lay between the ends of the bone. In cases of such extensive injury as this, the diagnosis is sufficiently simple, although the position of the foot is uncertain; it may be turned either inwards or outwards, or there may be inversion at one time, eversion at another, for it will generally remain in whatever position it has been accidentally placed.

The dislocation upon the dorsum of the ilium, that into the sciatic notch and fracture of the neck of the femur, attended with inversion of the foot, are to be distinguished from each other, according to Mr. Guthrie, by comparison or a due estimate of the degree of inversion; in the first case, the inversion is complete, the great toe resting against the instep of the opposite foot; in the second it is less complete, the toe resting

* See Plate, fig. 2, and No. 5, in the Table, p. 209.

against the ball of that of the opposite foot ; and in the third, it is still less complete, the great toe merely turning towards the opposite one." Attention, therefore, to the degree of inversion, as indicated by the position of the great toe, throws some light upon the nature of the injury, which is rendered still more evident, by observing the facility (so far as mechanical resistance is concerned) with which, in the case of fracture, the foot may be everted, the thigh flexed upon the abdomen, and the limb restored to its natural length by extension, and comparing its free, loose, powerless condition, with its almost immoveably fixed state in dislocation.

For the following very interesting case, I am indebted to my friend, Mr. Power, one of the demonstrators at the Richmond School of Anatomy. — Doolan, æt. 75, was admitted into Jervis-street Hospital, under the care of Mr. Adams, February 17th, 1831, labouring under a severe injury of the hip joint. The limb presented the following appearances : the hip was considerably swollen ; the trochanter major appeared twice its natural size, and drawn up on a level with the anterior superior spine of the ilium ; a considerable hollow was evident in the groin ; the limb was shortened four inches ; the foot was inverted ; rotation outwards could be performed, but imperfectly, and was attended with severe pain : on making extension and rotating the limb, an indistinct crepitus was perceptible. The patient stated that on February 1st, while endeavouring to unlock a door, he fell upon a heap of stones, upon the left hip ; on attempting to rise, he found himself unable to do so, and in this state was carried to the hospital. The appearance of the limb excited a good deal of interest ; and it was supposed that from its previous history, something might be elicited to clear up the doubts which existed as to the immediate cause of its present appearance. However, all that could be ascertained was, that many years ago he noticed a stiffness in that hip ; that gradually the limb became shorter and shorter ; that he contracted a halt, but that he never was confined to his bed in consequence

of the affection. The patient died about a fortnight after his admission. An inspection of the body was procured. The joint being removed and carefully examined, it was found that a fracture had taken place in such a manner, that the trochanter major was broken obliquely from the shaft of the bone, yet still connected with it by a slip of periosteum; it was considerably increased in size; the fracture occurred so as to leave attached to the trochanter, the pyriformis, gemelli, obturatores, and quadratus femoris; the trochanter minor was also completely detached, bringing away with it about two inches of the bone itself; the psoas magnus and iliacus internus were attached to this fragment; the neck of the bone was broken at its base. These were all the circumstances connected with the injury; but as it was suspected that there were other appearances in the interior of the joint, worthy of notice, it was laid open, and the condition of the parts here disclosed, satisfactorily accounted for the train of symptoms which the patient described as having occurred previous to the recent injury. A quantity of bone was deposited at the root of the head of the femur; it required some force to pull the head from the socket, and upon doing so it was found that the ligamentum teres had entirely disappeared; the cartilage covering the head of the bone was almost entirely absorbed, and in its place there was deposited a complete enamel, or something resembling ivory, smooth and polished; the head itself was altered in shape, it was larger than natural, and flattened upon its upper surface. The acetabulum was greatly enlarged, and lined by the same material as that covering the head of the femur; there was no trace of the substance termed Haversian gland, and the pit for its reception had entirely disappeared. When the fractured portions of the bone were restored to their original position, it was found that the neck of the bone was quite horizontal, and that from this cause, and from its increased size, the trochanter major was situated above the level of the head of the bone.

This case was similar to that of Murphy; both were liable

to be confounded with dislocation ; the great degree of shortening in Doolan's case, was partly owing to the horizontal position of the neck of the bone, the result of previous disease, and in consequence of which, a considerable shortening had existed before the occurrence of the accident.

We now come to consider an injury of the hip joint, which has not hitherto received the close attention it merits, and the diagnosis of which is always most difficult. I allude to the partial fracture of the neck of the femur.

While this paper was read before the Surgical Society, Mr. Adams, whose accuracy of observation and skill in diagnosis are so well known and appreciated by the profession, took occasion to make some remarks, the substance of which he has communicated to me, and allowed me to introduce here, which I have great pleasure in doing, as they bear so entirely upon the subject of my paper.

“It not unfrequently happens, that the surgeon is called to visit a patient, who by a fall on one of the trochanters, has suffered an injury of the hip, which generally at once incapacitates him from rising from the ground, and upon the nature of which it is most difficult to give a decided opinion : it presents some of the characters of fracture of the neck of the femur, but the more striking features of the accident are absent. The patient, in general, has a species of consciousness that he is unable to stand or walk, and therefore does not attempt either ; he is unable to raise, by one voluntary effort, the limb from the floor or bed, on which it is extended, but the limb does not lie everted in that prostrate, powerless state, which in its whole expression announces the complete fracture of the cervix femoris : on the contrary, while the patient lies on his back, he can shorten the lower extremity at will, and without pain, by flexing the leg on the thigh and the latter on the abdomen ; indeed, when we enter the room in which the patient is, we usually find the limb in this position, the knee raised from the bed, and supporting the weight of the

bed clothes, a circumstance which would strongly confirm the surgeon's prejudice, that in such a case no fracture existed; nor would any examination but a most careful one disabuse his mind, for he would find that even in the extended position there is no eversion. It is remarkable, too, that there is no perceptible diminution in the length of the limb: there is no crepitus, and in seeking for it, rotation can be performed inwards and outwards without causing the usual pain. The trochanter major not having lost the support afforded to it by the neck of the bone, does not fall back towards the ischium, as it generally does in the case of complete fracture; on the contrary, it seems to project more than natural, and if we wish to satisfy our mind on the true nature of the case, we must support the patient in the erect posture, and we are at once struck with the prominent position of the injured hip.

“Although the surgeon is always expected to give a decided opinion almost at sight, as to the question whether the bone be broken or not, it is often a matter of serious difficulty to pronounce positively upon the nature of the accident; and the memory of every surgeon will present him with cases in which he has felt all this difficulty in coming to a conclusion in his own mind, under such circumstances. When, however, a month or six weeks shall have elapsed from the period of the receipt of the injury, if now a new examination be made, the limb will be found shortened and the toe everted.

“As to what is the real nature of this injury, is a question which can only be replied to satisfactorily by the post mortem appearances, revealed by the anatomical examination of persons, who, during life, received injuries of the hip, which presented the peculiar characters of the accident here described. Opportunities, however, for such complete observation and subsequent investigation very seldom occur, as such accidents are not usually mortal.

“For my part, I am satisfied, I know some living instances of

patients who have suffered the accident I am here alluding to, the partial fracture of the neck of the femur, and I have in my possession thigh bones which are undoubted examples of such a lesion ; but I must confess that the instances are very few I can adduce, in which I can fairly connect the symptoms I have assigned to partial fracture of the cervix femoris with the pathological changes which characterize the injury.

“ These changes, however, I shall just now endeavour to explain ; but first let us direct our attention for a moment to the natural structure of the neck of the femur, the anatomy of the interior of which, considering the lengthened discussions that its accidents and injuries have given rise to, has been marvelously overlooked.

“ For this purpose, let us make a vertical section through the neck of a healthy femur, in the direction of its long axis, and continue it down through the shaft of the dry bone, the section leaving one half of the femur in front, and the other behind with the lesser trochanter, as has been done in the specimen of the healthy femur of a well formed adult man, from which fig. 4, in the plate has been taken. This simple view shews us that the principal strength of the neck resides in an arch of compact tissue, which begins small where the globular head joins the under part of the neck, but which gradually enlarges downwards towards the lesser trochanter, and even so low as the middle of the femur, where it will be found nearly twice the breadth of the opposite wall of the shaft of the bone : the compact stratum, which, scarcely thicker than a wafer, invests the entire of the head, upper part of the neck, and trochanter, seems to have little reference to any design of imparting strength or resistance to this portion of the bone, and the same may be said of the whole of the reticular tissue of these processes, while, on the contrary, the compact tissue of the *under surface* of the neck seems artfully arranged, if we can so say, so as to give support to the weight of the body in the erect position ; hence

do we find this compact stratum thrown into an arch, upon which the weight of the body falls, as that of a carriage does on the C spring which sustains it.

“ When we fall or leap from a height on the feet or knees, the thin upper stratum of the neck, and the whole of the reticular tissue of the bone, will first receive and probably yield somewhat to the weight, by which some of the force of the shock may be decomposed, but to the long arch of compact tissue, to which we have alluded, must ultimately be referred any violence which the neck of the femur can receive from any impulse transmitted from above.

“ We seldom hear of a fracture of the neck of the femur occurring to a healthy adult, when he falls with violence on his feet or knees, for the weight of the superincumbent body is thrown in the most favourable manner on the bony arch of compact tissue before alluded to, which, from its density and form, and strength derivable from both, it is almost always able to resist; and even a fracture of the acetabulum, or rupture of the capsular ligament and dislocation, are accidents more likely to happen under these circumstances.

“ But on the other hand, let us suppose a person to fall on the trochanter major, which is resisted by the ground, while the weight of the pelvis, &c. acting obliquely on the under surface of the neck, will have a tendency to bring the neck of the femur into a straight line with the shaft of the bone, or in other words, to efface its obliquity: here the compact tissue, so often alluded to, receives the force from below in a most unfavourable manner, and this tissue cracks across, and if no more happens for the present, we shall have the simplest form of partial fracture of the neck of the femur. The possibility of such an accident occurring, implies the certainty that there is toughness and tenacity enough of the material composing the reticular part of the neck of the femur, to yield without breaking, of which there can be now no doubt entertained.

“ While circumstances are in this state, we can conceive the

possibility of a patient being able to stand after such an accident, and even walk for some distance ; and when examined by the surgeon, we can understand how the latter, as it has often happened, might be deceived into the opinion that there was really no fracture. Again, we can easily imagine, that under such circumstances an awkward movement or a fall may render the fracture complete, or how, from a severe secondary injury, or even the continued action of the first impulse, somewhat varied in its direction, the upper fragment of the broken neck of the femur could be wedged into the cancelli of the shaft, but these matters it is not my object to discuss. I would wish now merely to investigate the cause of the subsequent change, which the unbroken part of the neck of the femur slowly undergoes, after the fracture of that compact stratum, which constitutes the chief strength of the cervix femoris, and to explain anatomically why the accident, at first so obscure, after six weeks have elapsed, becomes so evident as not to be mistaken.

“The neck of the femur is in this case shortened, because the compact tissue, in which resides the principal strength of the neck, has lost its continuity, and can no longer resist the action of those forces, which have a constant tendency to shorten the neck ; and ultimately everted, because although the reticular tissue of the neck of the femur may have elasticity enough to allow of a change of form, without being absolutely crushed by the force which produced the partial fracture of the neck ; yet it is probable that at the moment of the accident, the cellular tissue in which the vital elements of the bone reside, may have received a shock or concussion, which render the bone susceptible of a subsequent shortening or interstitial absorption, in consequence of which it will readily yield to the action of the muscles, and the limb after a time be everted.

“When we remove the femur from the acetabulum, which has been the subject of this partial fracture of its neck, and examine it, we shall uniformly observe that the threefold obliquity of the neck, viz., upwards, forwards, and inwards, are lost, and

that the head and neck of the bone are directed simply, horizontally inwards, at right angles with the shaft. Viewed posteriorly the intertrochanteric line, in all the cases I have examined, seemed to have been the seat of osseous deposition, and the interval between this and the head, which constitutes the back part of the neck, was diminished one-third; in a word, the shortening and eversion are here anatomically accounted for by the loss of obliquity, and the loss of length of the posterior part of the neck of the femur, the amount of which loss will give the measure of these remarkable phenomena of shortening and eversion.

“When we make a vertical section of the femur, which has been done in the specimen from which fig. 3 has been taken, as we did in the femur of an adult in its normal state, we observe that the compact structure at the upper part of the cervix, and the whole of the reticular tissue, shew not a trace of fracture or any alteration, except that of loss of obliquity; but if we examine the compact arch of bony material which stretches from the lesser trochanter to the under part of the head, we find that this has been the seat of fracture, and that by a gradual or sudden effort, it has been driven into the cancelli of the shaft of the femur, and with the compact tissue of the latter forms a T like disposition of their structures, as will be seen in fig. 3.

“This species of fracture was first noticed by Dr. Colles, and has since been briefly alluded to by Amesbury and others. Notwithstanding all that has been advanced, I feel the imperfection of our knowledge of this subject, and the inadequacy of these facts and observations to settle a matter of much practical importance. Still I am not without a hope that these remarks, imperfect as they are, may awaken attention to the subject of the partial fracture of the cervix femoris, and give rise to discussion, that cannot fail to be useful to science.”—R. ADAMS.

I shall now in conclusion make a few remarks upon that disease of the hip, which I have more than once alluded to, as modifying the symptoms of the accidents to which the joint

is liable, and obscuring their nature. The disease in question has been termed *morbus coxæ senilis*, to distinguish it from the scrofulous affection of the joint, which occurs in young people, and from which it differs in every respect: it appears to be the same affection as that described by Mr. Benjamin Bell, under the title of *Interstitial Absorption of the Neck of the Thigh Bone*: it is seldom seen under the age of fifty, is chiefly met with among the labouring poor, in constitutions otherwise healthy; it is however occasionally seen among the higher classes. It commences with pain and stiffness in the joint, the pain does not continue with any degree of severity: after walking some distance, the stiffness wears off, and the joint becomes supple, but towards evening, the uneasiness increases, until relieved by a night's rest; it is worse in damp, foggy seasons, and is aggravated by heat; the limb shortens by slow degrees, and the patient walks lame, but can apply the sole of the foot flat to the ground; the toes are turned outwards, the lumbar vertebrae acquire a great degree of mobility, the opposite buttock becomes prominent, and its muscles strong, while upon the affected side, the nates lose their prominence, and their fold disappears, but the muscles never become soft or flaccid, they remain as firm to the feel as in health; the spine acquires a lateral curve: the disease never advances to suppuration, nor does it at all endanger life, the general health is good, but the temper irritable. The affection is not peculiar to the hip, being occasionally met with in the shoulder-joint; it occurs at the same period of life, and sometimes in conjunction with the ossification of the arteries, or enlargement of the middle lobe of the prostate gland.

When we have an opportunity of examining the joint, we find remarkable changes in every structure entering into its composition. The capsular ligament is always much thickened, the cotyloid ligament is either ossified or absorbed, and the ligamentum teres is invariably destroyed, even in the early stages of the disease: the substance termed *Haversian gland* is

also removed, and the pit where it is accommodated disappears ; the cartilage of the acetabulum is absorbed, and its place occupied by a dense enamel ; the cavity itself undergoes various alterations of form and size : sometimes it is increased to three times its natural size, becoming also remarkably shallow, while in other instances, it is deepened without an increase of diameter, bony matter being deposited around its margin, so as to encircle the head of the femur, and render its extraction from the socket extremely difficult : the cartilage of the head of the femur is likewise absorbed, and in the early stages of the disease, the surface of the bone presents a peculiar porous appearance, or as Mr. B. Bell expresses it, “ the bone is as it were drilled by an infinite number of minute holes, of calibre varying from the fifth of a line to a line in diameter. These holes, on minute examination, do not appear to penetrate deeper than the shell or external table of the bone, and are filled by the processes of periosteum, which envelope the vessels of the osseous tissue.” But when the disease has existed for a long time, there is deposited upon the surface of the bone, a hard, dense enamel, smooth, white, and polished, like ivory ; the spherical form of the head of the bone is changed ; in recent cases, it is merely flattened from above downwards, but when the disease has been of long standing, it becomes greatly increased in size, keeping pace with the enlargement of the acetabulum, to the irregular form of which it is also adapted. The neck of the femur undergoes either partial or total absorption, and the head sinks to a right angle with the shaft, and appears to spring directly from it ; bony matter is deposited in considerable quantity about both trochanters, “ the lower part of the neck of the bone seeming as it were encased in a sheath of osseous matter, which is sometimes of a spongy texture, and sometimes of a dense structure, and presenting an irregular stalactitic surface.” —“ It is those cases of interstitial absorption which are combined with exostotic deposition, that are apt to be confounded

with fracture of the neck of the thigh bone.”* A vertical section of the bone in this state, bears a very close resemblance to fracture of the cervix external to the capsule, which had become united, and I have no doubt, has often been mistaken for it. When the disease occurs in the scapulo-humeral articulation, it causes a flattened appearance of the shoulder, and the long tendon of the biceps muscle is destroyed. It is impossible to confound the disease with the scrofulous affection of the hip, inasmuch as it occurs at an advanced period of life, never advances to suppuration, nor is the bone ever dislocated; it is unattended by constitutional disturbance, never endangers life, derives little benefit from treatment, and the patient, though he walks lame, is able to put the sole of the foot flat to the ground.

From all that has been said in the preceding pages, I think I am justified in deducing the following conclusions:

1. The less the degree of shortening, the greater is the probability, that the fracture is within the capsular ligament.

2. The degree of shortening when the fracture is within the capsular ligament, varies from a quarter of an inch to one inch; when external to the capsule, from one inch and a half to two inches and a half.

3. The limb may remain without any change in length for many weeks after the receipt of the injury, then retraction may suddenly occur.

4. This sudden retraction, at a period more or less remote from the receipt of the injury, indicates a fracture within the capsule.

- 5th. The presence of morbus coxæ senilis may not only lead us to suppose that a fracture exists, when the bone is entire, but also, when there is no doubt as to the existence of fracture,

* Bell on Diseases of the Bones, page 95.

may render diagnosis difficult as to the seat of the injury with respect to the capsule.

6. Inversion of the foot may accompany fracture within the capsular ligament.

7. The accident most liable to be confounded with dislocation upon the dorsum ilii, is fracture through the trochanters, together with inversion of the foot.

8th. The degree of shortening when the fracture is within the capsule, chiefly depends upon the extent to which the fibrous reduplications have been torn.

9. When the hip joint, long affected by that disease peculiar to old people, receives a severe contusion, we distinguish the accident from fracture of the neck of the bone, by the impossibility of restoring the limb to its natural length by extension, and also by an inquiry into previous history.

EXPLANATION OF PLATE.

Fig. I. Fracture of the cervix femoris within the capsule; the fracture passes obliquely downwards and backwards, its highest part being in front, where it encroaches upon the head of the bone; the fibrous reduplications, entire upon the posterior surface of the cervix, have suffered anteriorly a very slight laceration.

a The fracture.

b The fibrous reduplications.

Fig. II. Fracture of the cervix femoris, external to the capsule; fracture through both trochanters.

a Trochanter major separated from the shaft, and drawn upwards.

b Trochanter minor broken off, along with a portion of the shaft of the femur.

c Osseous deposition around the head of the femur.

d Fracture through the cervix femoris.

Fig. III. Vertical section of the head, neck, and a portion of the shaft of the femur, shewing partial fracture of the cervix united by bone.

a The compact tissue which lines the concavity of the cervix femoris, forced into the cancellated tissue, and united at a right angle with the compact tissue of the shaft.

b Trochanter minor.

Fig. IV. Vertical section of the head, neck, and a portion of the shaft of the femur of a well-formed adult male.

a The arch of compact tissue, which, lining the concavity of the cervix, increases gradually down to b, where it is double the thickness of the opposite wall of the femur, d.

c The thin layer of compact tissue which invests the upper surface of the cervix.

ART. VIII.—*Practical Observations in Midwifery*. BY WM. F. MONTGOMERY, A. M. M. D., Professor of Midwifery to the King and Queen's College of Physicians in Ireland, and Accoucheur to Sir Patrick Dun's Hospital.

I. On Transverse Malposition of the Head, as a Cause of Difficult Labour.

IN a former communication in this Journal,* I insisted strongly on the indispensable necessity for a complete and intimate acquaintance, on the part of the accoucheur, with the mechanism of labour, and especially with the exact relations which the different parts of the child's head observe with these of the pelvis, during the progress of a natural labour: by the accuracy of which knowledge alone, and our readiness in applying it in practice, can we hope either to understand the actual condition of any case under our care, or be able to rectify deviations, or remove difficulties, by means at once easy, safe, and effectual, instead of being compelled to resort to the use of instruments, the application of which, *however skilfully managed*, must always expose both mother and child to a certain degree of danger, and too frequently gives rise to injuries of a very deplorable kind. If it were necessary by facts to confirm a proposition so undeniable, I could scarcely adduce any which would, in my opinion, more powerfully support its truth, or illustrate the advantages derivable from its adoption, than those on which I now propose to offer a few observations.

I presume I may take for granted, that every one engaged in midwifery practice, has from time to time met with cases in which, while every thing seemed favorably circumstanced, and the labour was apparently proceeding expeditiously to its termination, the head has become suddenly stationary in the *cavity*

* Number xiii. p. 52, et seq.

of the pelvis, and there remained for many hours, or perhaps until a necessity has arisen for adopting instant means of delivery; and this too when there really existed no deficiency of space to prevent its free passage. The occasional cause of this species of arrest, I believe to be not at all generally understood, which I shall now endeavour to elucidate, by a description of a particular kind of displacement to which I have been in the habit in my lectures, of applying the name of *transverse malposition*; and by the detail of one or two cases in which its detection afforded an opportunity of giving instant and complete relief, and happily terminating a severe and protracted state of suffering.

I may just premise, that in the most perfectly natural labour, the head enters the pelvis with its longer axis in coincidence with one of the oblique diameters of that cavity, and with the chin pressed up close upon the chest, until the vertex has descended so low as to press upon the soft parts forming the floor of the pelvis; the occiput then begins to advance towards the arch of the pubis, and the face retreats towards the hollow of the sacrum; next the chin recedes from the chest, and the occiput issuing from under the pubis, the head escapes by revolving as it were on a pivot under the anterior wall of the pelvis, so that in this way the head passes through the bony and unyielding chamber of the pelvis, in such a position, that it occupies the least possible dimensions, and the departure of the chin from the chest, which immediately requires greater accommodation, does not take place until the occiput having cleared the confines of the pelvis has *unlimited* space to allow of its escape. But occasionally this felicitous arrangement is disturbed, and complete arrest of the head produced by the deviation which occurs thus; the head having entered the cavity of the pelvis in the position already described, the occiput, instead of moving forwards towards the pubis, recedes towards the spinous process of the ischium, and the face, instead of retreating towards the sacrum, falls into the

space between the opposite spinous process of the ischium and its tuberosity; and the chin having receded from the chest, the head is placed with respect to the outlet in the most unfavourable manner possible, since it presents to it the greatest possible dimensions which it is capable of assuming, its longest diameter resting its extremities on the opposite tuberosities of the ischia, while at the same time the parietal bone rests on the lower part of the sacrum and coccyx, so that the head is in the condition of a ball supported on three nearly equi-distant, solid, and immoveable points; under which circumstances the action of the uterus, however vigorous, seems totally incapable of either changing the relations thus established, or of effecting the delivery, while they continue as they are. On examining, the finger will pass readily between the head and the pubis, and also posteriorly except at the point of the sacrum, but there, and opposite the tuberosities of the ischia, the head is felt to be closely locked; the anterior fontanelle is found to be in the centre of the presentation, and the sagittal suture can be traced exactly across the outlet from side to side. How completely and how long this malposition will resist the most powerful action* of the uterus, and how easily it may be rectified, will appear sufficiently from the subjoined cases; from which also it will be seen, that this difficulty (occurring as it does at a time when from the advanced position of the head, and the state of the perineum and other soft parts, delivery is momentarily expected) is likely to be productive of extreme embarrassment to the attendant, the more especially as the previous birth of full grown children, or even the circumstances of the case, may of themselves afford proof, that there is no natural deficiency of space, since the head may without difficulty be raised from its situation, to which however it immediately returns, and will there remain until the necessary rectification is

* "Valentissimi dolores nihil proficiunt."—RÖDERER.

effected, which should be done in the following manner. Apply two fingers along the junction of the parietal and frontal bones anteriorly, then *in the absence of pain* press up the forehead and push it backwards towards the sacrum, and there retain it till the access of the next pain which will in general complete the rectification, and the delivery is speedily accomplished, at least it so happened in the instances which came under my observation. It is scarcely necessary to add, that if, during the descent of the head, a tendency to this malposition be observed, we should at once endeavour to prevent its occurrence, by adopting the means already pointed out as suited for its correction when established; and this I have succeeded in effecting in a few instances.

CASE I.—On Wednesday, July 15, 1829, I was requested to see a patient with the late Mr. Gregory, and Dr. Carter; labour had commenced on the previous Monday evening, and proceeded actively on Tuesday; by six o'clock, P. M., the perineum was distended, and the head apparently on the point of being born: in this situation, however, it remained at nine o'clock, A. M. of Wednesday, when I saw her; although the uterus had continued to act most energetically the whole of the intervening time, and the soft parts were perfectly relaxed. It was the patient's second labour; she was young, healthy, and well-formed, and had about eighteen months before borne her first child, which was full sized, after an easy labour of about five or six hours, so that deficiency of space was not probable. On examination I found the head pressing on the perineum, I could pass my finger quite easily between it and the symphysis pubis, but at the sides there was no room at all: the anterior fontanelle was in the centre of the passage, the sagittal suture coinciding with the transverse diameter of the outlet, and the occiput turned to the left ischium: the uterus was acting violently, but produced no other effect upon the head than that of pressing it a little downwards during each pain, on the cessa-

tion of which it immediately resumed its original situation. Under these circumstances, I proposed manual rectification of the displacement evidently existing; and having applied my fingers, as already described, along the side of the forehead, I raised and pushed it backwards, towards the right sacro-iliac symphysis, in the interval between two contractions of the uterus; I there retained it, and on the accession of the next pain, I repeated the pressure backwards, when the forehead immediately glided to its proper place, at the same time the vertex moved forwards to the arch of the pubis, and *in about two minutes* the delivery was completed by the birth of a fine healthy child.

CASE II.—On the 14th of January, 1834, while lecturing at Sir Patrick Dun's Hospital, I received an urgent message from Mr. Dunlop, requesting my assistance in a case of obstructed labour, which he had been called to see, and in which, from the extreme violence of the uterine action, he apprehended rupture of the uterus, if the head was not speedily extricated; it was the woman's fifth labour, the four former having been short, and in every respect favourable. In the present instance, symptoms of labour had come on the evening before, the pains had continued gentle through the night, but towards morning they became more active, and at half-past seven o'clock the head was pressing upon the perineum to such a degree, that its exit was momentarily expected, but there it remained, without any further advance, when I arrived at half-past eleven, although the uterus had been, during the whole of the intervening four hours, acting incessantly and so powerfully that its rupture was with great reason apprehended. On examination, I found the perineum and soft parts protruded by the head, they were unusually relaxed and yielding; the head lay across the outlet of the pelvis, with the occiput resting against the tuberosity of the *right* ischium, and the forehead against the left, having probably descended in the second position; there was abundance of space between it and the pubis, *and it could be easily raised*

into the cavity of the pelvis, but the next pain instantly forced it back to its resting place, and when there, the uterine action, although so strong, had no further effect on it whatever. I immediately adopted the same mode of rectification as in the former case, by elevating the forehead, and pushing it round towards the sacrum, when it almost instantly assumed its proper relations under the influence of a pain, *and the very next contraction of the uterus expelled it*; the body immediately followed, and the delivery was completed in *less than two minutes* from the time of effecting the change of position in the head. The child was alive and vigorous. I was fortunate enough in this case to have the valuable assistance of my friend Dr. Darley, who happened to be with me when I was sent for.

With reference to these cases, it is to be observed, that the subjects of them were women who had already borne children without any difficulty, and that there was evidence at the time, from the circumstances of their cases, that there was abundance of space, as the event fully proved; and yet the obstacle created merely by this kind of malposition of the head was such as to resist, in the one instance for *fifteen hours*, and in the other for *four*, action of the uterus, so powerful that it effected the delivery almost the very instant that the displacement was corrected.

As to the cause of this malposition, I am not prepared to offer any satisfactory explanation, nor is it, as far as I can see, a matter of the least consequence. The idea of Levret, that such misplacements of the head were caused by the situation of the placenta, is so unsupported by either facts or reasoning, and is indeed so fantastic, that I think we may dismiss it at once without further consideration. Neither is the hypothesis, which would explain them by obliquity either of situation or action of the uterus, in any degree more satisfactory. Røederer ascribes some such deviations to misdirection of the shoulders, which he supposes in such cases to be placed across the smaller diameter of the brim; that this may be so occasionally is not improbable, but in the particular species under consideration, I think it cer-

tainly is not the case, because we can so completely correct it, merely by changing, and slightly too, the position of the head without moving the child's body at all. One thing, however, is certain, that when the malposition has taken place, the chin of the child has receded from the chest, and the forehead has sunk as low as the occiput, and that its re-elevation is essential to the rectification, and must be accomplished before delivery will take place; for while the transverse position continues, the natural efforts will not be sufficient, the forceps will not answer our purpose, and turning is out of the question, so that if the real nature of the case be not recognized, recourse will be almost certainly had to the appalling operation of cephalotomy, and a human life unnecessarily sacrificed. It seems very reasonable to suppose, that an unusual projection or curvature of the spinous process of the ischium might have the effect of producing this accident, because, under such circumstances, the forehead being prevented from gliding backwards, and being still acted on by the uterine contractions, would almost of necessity, be forced downwards into the situation where we find it in such cases, and the occiput would, of course, assume the corresponding situation at the opposite side of the outlet.

ART. IX.—*Remarks on Tubercular Phthisis with Symptoms of Obstructed Circulation.*—By R. POOLE, Esq., Assistant Surgeon, 32nd Regiment.

THE frequent occurrence of phthisis has afforded so many opportunities of examining its pathological anatomy, that we may conclude, little of consequence remains to be added to our knowledge on the subject; and this supposition derives confirmation from its having been ascertained, that all the different forms of the disease which have so often been described as existing, are referrible, almost solely, to one disorganization of the

lungs, by the infiltration of tubercular matter. However fatal this discovery may be to the multiplication of varieties of the disease, it can in no way be held as preventing the frequency of the modification of its features; for if the accumulated researches of modern observers of morbid structure have succeeded at all in enlarging our views of disease in general, it must be conceded to them, in the first place, that they have established this fact, that the same lesion of structure may be characterized by the most different phenomena, according to the condition of the subjects in which it occurs. We have some reason to infer, that much of the contradictory statements of the older physicians has resulted from this important point having been greatly overlooked; and looking at the ambiguity that still pervades many modern contested points, we have also cause to doubt its application being as extensive, at present, as its importance requires. This consideration, however, is foreign to the present investigation, the object of which is to give only one example of the fact alluded to. This appears to me will be best done by detailing the following cases, highly illustrative of its principles, as regards pulmonary consumption.

CASE I.—Private Michael Walsh, 69th regiment, aged 24. I found this man in the hospital of the reserve companies of the 67th regiment, when I took charge of it, during the absence of the medical officer, in September, 1833, at Templemore. The first report I made on the case is the following; it bears date October 2nd, 1833.

It appears, from the man's own statement, that he has been long unwell. He suffered greatly about eighteen months ago from a pulmonary affection. During the recovery from this, while on a march, he took a dose of epsom salts, which acted violently, with bloody stools; since this time he has been subject to copious hæmatemesis, with dry, short, though only occasional cough. He has long had dyspnœa. The hæmorrhage has been treated with the mineral acids, which always re-

strained it at the time, but never prevented its recurrence. He presents: a bloated complexion; a trifling cough; very great dyspnœa, his breathing being short and rapid; a sense of violent palpitations of heart, and some pain about the cardia. His appetite is voracious, and has been gratified with a liberal diet. No great thirst, nor any symptom of disordered *primæ viæ* but the hæmorrhage from the stomach. This generally occurs every third or fourth night, is exceedingly profuse, and brought up by retching or coughing. Pulse full, quick, tolerably hard. Skin rather warm. Impulse of heart considerable; dullness of both sounds. No evidence of diseased lungs. A milk diet, and counter-irritation to the cardia ordered some days ago.

October 5th. Has improved very much since last report; the pulse has fallen considerably; and the skin become less heated. No return of the hæmorrhage. Cough scarcely perceived at all. Complexion less bloated. Bowels regular by medicine.

October 29th. Since the report of the 5th, has continued improving. He has lost completely his bloated appearance, and had no return of the hæmorrhage. Strength and *stamina* not decreased. He was discharged from hospital, but not allowed to return to duty.

To the following note on the case there is unfortunately no date. It appears since I gave over the charge of the 67th, that this man got damp feet, and returned to hospital with a renewal of the dyspnœa. While under treatment for this, no mercurial preparations having been used, he was attacked with profuse salivation, spongy gums, fetor of breath, and other signs similar to those accounted indicative of the mercurialization of the system.

The patient continued to present remarkable dyspnœa; the sense of palpitation; a puffy state of the features; some cough, with muco-purulent expectoration, and a bulimial appetite, until the 27th November, when he expired. Some diarrhœa

was observed a few days before death, but otherwise his bowels had been confined.

Autopsy, 28th November. Some marasmus ; no infiltration ; dull sound on percussion throughout left side of chest. *Thorax*.—Cellular adhesions in left side ; right lung unconfined ; heart, *in situ*, appeared very large ; no serosity in either pleural sac ; complete tubercular infiltration of the two upper lobes of the right, and throughout the whole of the left lung ; one or two small excavations in the summit of both ; some of these had advanced to the pulmonary pleura, without causing it to be disorganized (thickened.) The lower lobe of the right lung was gorged with blood ; some portions of both presented induration of the parenchyma. *Heart*.—Considerable dilatation and attenuation of the right ventricle ; left probably a little hypertrophied. *Abdomen*.—Stomach very large. This viscus, the duodenum, and ileon presented many vascular patches.

The details of this case are necessarily less satisfactory than I should have desired, as the man was only a short time under my immediate observation ; they are sufficient, however, I hope, to show the prominent features it presented. The next, being that of a man of my own corps, I am able to give ample information on, both as regards its progress and termination. It would occupy, however, a much greater space than the limits of this memoir would permit, were I to give its full history ; I will content myself then with detailing its principal features, and reserve for after consideration the peculiar habits, and other circumstances connected with the condition of the patient.

CASE II.—Recruit, William Hodsfield, 32nd Regiment, aged 21. This man first came into hospital in November, 1833, at Templemore, with symptoms of inflammatory fever ; he was a tall plethoric subject, with black hair, blue eyes, large chest, but small legs ; he was remarkable for a purplish colour of cheeks and lips, which became very great when he was exposed to any cold. Until the 24th of the month mentioned

above, were observed, accelerated circulation, heat of skin, with perspirations, pains of the extremities, furred tongue, and some tendency to diarrhœa. By general and local bleeding, evacuants, and rigid diet, these symptoms yielded, and the patient was apparently doing well, when I found him on the morning of the 24th in the following state :

Appears nearly moribund ; the pulse, at the wrist, is small and feeble ; there is great torpor, and tendency to coma. The extremities are cold ; the cheeks also have a low temperature, are much congested, of a dark purple colour ; the lips are quite livid. The man on being roused makes no complaint, but immediately relapses into his former condition. The pupils are rather contracted, and not influenced by the light ; no congestion detected in the lungs ; action of heart far from being great, but it is proportionally more energetic than the general circulation. External warmth being applied, and a little wine negus given, the patient became less torpid, and refused to take more wine, as he said it burned his stomach. The pulse rose a little, but continued soft, and readily compressible. At the evening visit, the patient was still lethargic, the pulse had again become feeble, and the surface cold. Having complained in the forenoon of pain about the ileo-cæcal region, leeches had been freely applied, which had bled well ; blisters ordered to the calves of the legs, and the abdomen to be diligently fomented.

25th. Has passed an easy night, and appears much better this morning ; says he is very hungry ; cheeks still congested ; pulse 98, very soft and feeble ; skin of natural temperature ; bowels free.

Vesperi.—Has been uneasy during the day, and is now moaning a great deal, although it is difficult to ascertain a cause for it. It appears he became very cold, several times since the morning, and has complained much of his head ; ate some thin arrow root with avidity ; the pulse is fuller than before ; and the skin is now warm.

From this period the patient went through a course of mild

fever, (which was often broken by a recurrence of the tendency to asphyxia,) and presented, along with the symptoms peculiar to this, very great lethargy, the congested state of the features, and a ravenous appetite. He became convalescent on the 14th December, and was shortly after allowed to leave the hospital, but not to return to duty.

On the night of the 22nd January, he was again admitted, and presented as follows:—Much flushing, and turgidity of face; it appears as if bloated; considerable anxiety; a rapid, full, hard, but regular pulse; much heat of surface, but it was stated to have been cold and moist previous to admission; hurried, short respiration; some dry cough; no constraint of decubitus; acute pain is felt over the whole chest on pressure; left submammary region gives a dull sound on percussion, the chest otherwise sounds clear; respiratory murmur clear and distinct throughout both lungs, the left generally more puerile than the right; considerable impulse of heart; in the cardiac region, both sounds are dull, but above this, along the sternum, and over the whole of the upper chest, they are intensely loud, and attended at times by a brief soufflet. Nearly fifty ounces of blood taken from the arm; three quarters of a grain acet. morph. administered.

23rd. The patient slept profoundly until late this morning. He appears on the whole easier; decubitus still natural; pulse 110, full, soft, regular; heat considerable; cheeks still livid; face less bloated; breathing more easy; has coughed very little; acute pain is still felt over the chest,—along the pectoral muscles,—over the carotids;—under the clavicles pressure produces much pain; he has also pain in his left leg, over the tibia of which is presented a large ecchymosis of a livid colour; another spot, but of a red colour, exists over the right ankle. These patches, he states, appeared suddenly the night before admission; bowels confined; bleeding repeated to the extent of twenty-six ounces; evacuants and diluents; blood drawn last night buffed, but not cupped; very little serum.

24th. Appears in most respects better, although a little depressed. *The livid patches on the cheeks are replaced by red ones* ; pulse 94, soft, some moisture on surface ; no cough ; breathing natural ; has now very little pain of chest, but pressure over the pectorals, at the top of the sternum, and above the clavicles, still occasions pain. In the cardiac region the sounds of the heart are normal, but they continue to be heard loud and clear in the parts formerly mentioned ; impulse inconsiderable ; respiratory murmur every where natural ; ecchymosis of left leg much diminished in extent, but it is still livid : right ankle less red ; blood drawn yesterday more serous ; a light yellow coat on the first cup ; it flowed from the vein of a very dark colour.

27th. Since last report has presented nothing abnormal, but a little cough, and some redness about the integuments of the left leg. The pain has completely left the chest ; breathing natural ; complexion healthy ; pulse soft and calm ; appetite excellent.

He was discharged from hospital on the 1st of February, quite recovered from this attack, and bore the fatigue of a march from Templemore to Clonmel, much better than I could have anticipated. On the 7th February, he was readmitted with pains of trunk and extremities, and some cough. He recovered from this ; was discharged on the 15th, and after remaining a few days on the convalescent list, returned to his duty. During my absence from head quarters, he was admitted again on the 2nd March, and discharged on the 4th. On the 11th of this month he was readmitted, suffering from slight pains of shoulders, and chest ; some cough, with expectoration. On the 17th, he presented the livid complexion ; a slightly accelerated circulation ; pain of left upper breast and shoulder ; considerable cough, with frothy, mucous expectoration ; little or no loss of flesh : no depression.

19th. Complains to-day of considerable pain at epigastrium, and over the abdomen generally ; it is slightly tumid ; says his feet have been very cold for some time, they are much

so at present ; trunk and extremities heated ; red flushing of right cheek, the left is very livid ; pulse 100, small ; cough much easier ; has expectorated very little.

21st. Was better yesterday ; bowels moved by castor oil ; the abdomen ceased to be tumid and painful. There was observed also yesterday a scanty expectoration of a very frothy, clear, viscid fluid. Has to-day some vomiting and diarrhœa occasioned by some medicine taken yesterday ; complains much of weakness ; the pulse is weaker, but as frequent as before ; expectoration continues ; breathing rapid.

22nd. Says he is better to-day ; the pulse is still rapid, but fuller than before ; trunk heated ; feet again cold, and have been so since last night ; abdomen bears firm pressure ; does not complain of weakness to-day ; cheeks still purple ; breathing less rapid ; cough easier ; expectoration as before, with some yellow masses ; decubitus impracticable on right side ; resonance of left upper chest impaired ; copious, sonorous, and sibilant rales along the margin of the right lower lobe.

25th. There has been little change up to this morning, although he passed last night badly, from diarrhœa and attempts to vomit ; is worse this morning in every respect. The features are much shrunk, the face is pale, but the cheeks are still very livid ; look of complete exhaustion ; breathing quick, it is remarkably accelerated when he tries to turn on the right side ; pulse 104, very weak ; has no pain ; cough easy, but he has expectorated a large quantity of frothy, tenacious, clear mucus ; abdomen quite easy ; heat generally diffused, moderate ; resonance of right submammary region impaired ; respiratory murmur very obscure in this situation.

26th. Passed another bad night, muttering to himself, and otherwise irrational ; vomited some last night and this morning after drinking some barley water ; says he is better this morning ; his appetite is less voracious ; breathing much more rapid ; pulse very small and soft, still upwards of 100 ; a good deal of cough ; expectoration still copious ; the right hand has become

livid ; decubitus chiefly on left side, but he can lie on his back ; is unable even to turn on the right without producing cough, and increased dyspnœa ; heat moderate ; right side less defective in resonance, but the respiratory murmur here is still obscure ; along the spinal edge of the scapula, on this side, a fine mucous or subcrepitating rale attends the respiratory murmur ; left side affords a dull sound on percussion only at the cardiac regions ; the whole being at this side, except a small portion at its summit, affords also a distinct subcrepitating rale ; impulse of heart very inconsiderable ; sounds much diffused.

27th. Passed a good night, and says he is much better to-day ; is in excellent spirits from having quite recovered his appetite ; no nausea, nor diarrhœa ; cough still considerable ; expectoration as before ; breathing very rapid and short ; the pulse is so small and quick as to prevent its being counted ; perspired some last night ; *can lie now on the right side without inconvenience* ; the cheeks are very livid ; when the patient closes his eyes, the countenance is cadaveric ; urination suppressed ; heat moderate ; left side still sounds dull, in many parts ; right side, except its submammary region, does not sound clear ; the left lung continues to afford the subcrepitation as generally as before ; the right side also, down to the nipple, is pervaded by the same roushus ; the submammary region of this side is the only part of the whole chest in which it can be said the respiration is perfect.

28th. Last night there was again great sinking of the surface temperature ; he passed it badly, and appears much worse this morning ; he is greatly depressed, and frequently gives way to tears ; lays now altogether on the right side ; cheeks, ears, and hands very livid ; respirations 40 ; pulse small, rapid, cannot be counted ; cough more frequent ; expectoration diminished ; sthethoscopic signs not altered ; rale heard over both backs ; appetite gone.

29th. Passed a bad night from cough ; expectoration still diminishing ; appetite a little improved ; less depressed ; pulse

better developed, 106; respirations 46; decubitus again impracticable on the right side; some pain of abdomen; legs, occasionally, very cold; cardiac region gives a very dull sound; the right lung is not so generally pervaded by the rales as yesterday, the left probably more.

30th. Respirations 50; some difficulty in speaking; pulse very quick and small; says his cough is worse; lays again on the right side; the left affords far less subcrepitation than yesterday, the lateral portions presenting none at all; subclavian and submammary still pervaded by it, but the mammary affords none. The right side is completely pervaded by it; that is to say, in as many parts as were examined by the stethoscope; the patient has become loath to the operation. It is a singular feature in the case, that he rarely uses a raised posture for the head, but, on the contrary, he keeps it hanging over the side of the bed, apparently deriving ease from the position.

April 1st. It appears that twice during the day yesterday, the patient was attacked with a peculiar febrile paroxysm, marked by great flushing of face, heat of surface, remarkable anxiety, and dyspnoea, amounting to a panting for breath. These paroxysms followed the taking of ingesta; solid or fluid appeared equally to excite them; they went off gradually, and left him in his usual condition. The patient, with all his ailments, gets out of bed every day, and walks down stairs; he appears little conscious of his situation; has some diarrhoea; appetite gone; respirations 60.

3rd. A remarkable change for the worse; the patient appears moribund; he is drenched in perspiration; the features are swollen and livid; breathing rapid; pulse barely perceptible; voice greatly suppressed; has been raving a great deal during the night, and this morning; diarrhoea again urgent; hardly any appetite; very greatly depressed; great weakness; very little cough; expectoration scanty; decubitus on right side; has no pain; tracheal rattle.

4th. Passed a bad night; much more sunk this morning

Complains greatly of pain throughout abdomen ; pressure on any part below the umbilicus excites great suffering ; vomited this morning ; bowels less purged ; no appetite ; coughs a good deal ; extremities cold ; pulse imperceptible.

5th. This poor lad is still alive, and passed a better night, sleeping profoundly ; copious perspiration ; sinking rapidly ; face and extremities quite cold. Wonderful to say, he gets out of bed still after the morning visit, and walks down stairs ; appetite rather improved, says he has no pain now, except a little about his stomach ; coughs seldom ; face very livid.

6th. Sat up again yesterday for about an hour, and continued in the same state as mentioned above, until half past two this morning, when he expired ; he retained his intellect and speech until a few minutes before death.

Autopsy, 6th April.—Marasmus of extremities. The cardiac region affords, in addition to other parts, a very dull sound. No adhesion in any part between the lungs and costal pleura. The lungs did not collapse on the chest being opened. The anterior fringes of the right, and the anterior portion of the upper lobe of the left, were the only parts that presented the natural colour of the lung ; all the rest was of a deep livid hue. The parts above mentioned were alone inflated when air was thrown into the lungs. The right lung was in every portion of it closely infiltrated with small, round, crude tubercles, not one of which presented a trace of softening. The intervening space of the parenchyma, with the exception of the anterior fringes, was gorged with dark coloured blood. There was not the least appearance of hepatization, but the blood did not escape on cut portions of the lung being pressed. No part of it sank in water. Its texture was not granular, and it readily broke down under the finger. The fringes were equally well supplied with tubercles ; some of the bronchial glands were infiltrated with a soft cheesy matter. The left lung was also closely studded with the same kind of tubercle observed in the right ; the lower lobe and the posterior surface of the upper were gorged with blood. In

neither lung was there any aggregation of the tubercles, all were distinct from each other; the heart appeared large *in situ*; its envelope contained eight ounces of a lemon-coloured fluid. Both ventricles were gorged with coagulated blood: the right was greatly dilated, and its parietes very thin; the walls of the left were not thick. The liver was large and soft. The gall bladder was of a white colour, it contained but a small quantity of a rhubarb-coloured fluid. Its mucous membrane was highly vascular; the sub-mucous increased to nearly half an inch in thickness, from infiltration of its areola with a light yellow serosity. Cystic duct impervious. The common duct presented no trace of vascularity. Hepatic not much dilated. Spleen large and firm. The Stomach was not large; it contained, among other matters, a small quantity of dark-coloured blood, which appeared to have escaped from a small vessel found near the cardiac orifice, terminating in an ecchymosed spot on the mucous membrane. Many vascular patches, some of a bright red, others of a darker hue, appeared on different parts of this membrane. Intense vascularity of the duodenum. The follicular glands greatly developed. Some vascular patches on the mucous membrane of the ileon. The cæcum presented considerable vascularity of its inner tunic, alternating with patches of a blackish colour. Some serosity in the pelvic cavity.

Observations.—The cases now detailed present few features in common with the ordinary examples of phthisis; in fact, their whole course was attended by phenomena, the very opposite to those the disease in general exhibits; but there was nothing detected at the post mortem examination very different from its usual anatomical characters. There was certainly not so great disorganization in the lungs as we meet with in the majority of phthysical subjects; the disease had advanced little beyond what may be termed its first stage; yet, as phthysical patients, during this stage, seldom present features similar to those characterizing the present, we have no authority to consider the little progress the disease had made, as at all connected

with the cause of the particular phenomena alluded to. This cause, therefore, must be looked for elsewhere, but before proceeding to do so, it may be as well to review the symptoms, and determine their general character, after which we may be better qualified for the discovery of their source.

This very material fact strikes us at the outset, that in their features, progress, and termination, the cases simulated closely some diseases of the heart, for they afford not only the equivocal characters of these, but actually others that may be considered their pathognomonic. It is very true that both cases presented a considerable lesion of this organ, a lesion that, before death, caused much embarrassment to the diagnosis, but it cannot for a moment be inferred now, that the dissection has discovered the disorganization existing elsewhere, that it is to this lesion alone, or even in a great measure, we are to look for the cause of the modifications they manifested. The lesion of the heart, notwithstanding, is a most important feature in their history, and will receive hereafter due consideration. The following recapitulation of the symptoms will shew clearly how closely were simulated those of diseases of the heart.

A purple suffusion of the lips and cheeks was observed at an early period in the man of the 32nd, it continued more or less marked to the close of the case. A bloated complexion, and an œdematous puffiness of the features distinguished the other. Great difficulty of breathing, amounting latterly to complete orthopnœa, and palpitations were observed in this latter. Somnolence, (lethargy), frequent tendency to asphyxia, and intense dyspnœa in the latter stages predominated in the first. In this also were observed frequent congestions, in the other the hæmorrhage from the stomach appears to indicate a similar affection of the abdominal viscera. In neither of them was there much cough, expectoration was very scanty; the little that was observed in the man of the 32nd regiment, appeared similar to that afforded in œdema of the lungs. There was no hec-

tic; no night sweats; no progressive emaciation. Pain of the chest was seldom complained of, neither of the cases offered evidence of inflammations having been frequent.

Another material point comes now to be considered, it relates solely to the condition of the patients. It appears to me of the greatest importance to be recognized, but as it could only be accurately ascertained by the immediate observers of the cases, I fear I shall have some difficulty in making it as evident to the reader as I am sure it deserves to be. The following are what strike me as the principal facts connected with it.

Both patients had large trunks, the man of the 32nd, in particular, possessed a chest amply expanded, and both, but for the less complete development of the muscles of the extremities, would have been considered as robust, healthy individuals. They retained this appearance of robustness through the greater part of their illness, as it was only near its termination they seemed to lose flesh. This loss, however, was not considerable, for both corpses afforded a good deal of adipose matter in different parts, and but little attenuation of the muscular fibres of the trunk. With this state of the locomotive apparatus existed, in both, a remarkable fulness of the vessels of circulation; they might in fact have been adduced as examples of plethora, for every thing about them proves they generated more blood than was applied to the wants of the system. The man of the 32nd was subjected to very copious losses of blood, (at the second period of his admission, for example, he lost between four and five pounds,) and yet those weakened him so little, that a short time afterwards he appeared in no respects altered, and was enabled to perform a long march with but little inconvenience.

The habits of this man were exceedingly favourable to the production of plethora, for I am quite borne out in saying, his life consisted of alternate periods of gorging himself with food

of the most nutritious quality, and abandonment to sleep. He was frequently known to have devoured every thing that remained of his comrades' messes, after having ravenously despatched his own. It must not be imagined that this state of matters existed only previous to the development of the lesion of the lungs; it was equally manifest immediately prior to the period of his last admission into hospital, long before which there had been many symptoms that denote this lesion having been effected. In the other man, though in a less degree, a similar condition was clearly existing, with the tubercular affection. This is shewn by the appearance of the features, the fullness and strength of the pulse, and the little diminution of the strength the profuse hemorrhages from the stomach occasioned. All of these were very evident long after symptoms, which may be presumed indicate the existence of the tubercular infiltration. I cannot account for the way in which this man's plethora was kept up, so readily as I have done in the other, for I know, necessarily, less of what were his habits, but as he had a bulimial appetite which was pretty freely indulged even in hospital, and never underwent any depletory treatment, it is very probable he owed it much to the same causes as the other. Be this as it may, we have no reason to doubt its existence in either, but, on the contrary, every thing to convince us, that until the death of both patients they were most abundantly supplied with blood.

I have been thus particular in the details of this latter point, from being desirous to show, that our patients, having obtained a condition of sanguination, to which the term plethora might without exaggeration be applied, differed in this respect very greatly from the ordinary examples of phthisis. It is not likely, however, that having ascertained so much, we should have nothing left for further discovery. In conformity with our knowledge of the general principle, referred to at the commencement of this memoir, we naturally expect this difference in condition to be accompanied by particular phenomena; hence we

are led to conclude, that as far as the symptoms of the present patients differed from those of the ordinary examples of phthisis, so far are we to consider this difference in sanguination as the cause. Much, however, remains to be done before the correctness of this conclusion can be admitted, the mere force of a syllogism avails little in the explanation of vital phenomena, and it would be here utterly useless, were we unable to shew some reason for believing, that the difference in this point necessarily determined the *kind* of symptoms that characterized the cases. Before doing this some observations are required to point out the condition of sanguination in the ordinary examples of phthisical patients, and the consequences we find resulting from it.

For all general purposes we may divide this class of individuals (with regard to sanguination) into two varieties. The one is marked from the beginning of the disease by a striking appearance of cachexy, which, we infer, indicates not only a deficient supply, but also what is termed, an impoverished state of the blood. The other presents, *at the same period*, very little to induce us to consider any thing being faulty in this particular. The latter statement, however, must be taken in a very general sense, for we have no authority to affirm that such persons do not differ, in the condition of their sanguination, from others not liable to the disease. All that I wish to be understood as implying, by the remark, is, that the latter individuals approach the former, in this respect, so little, that one might readily believe the evil to exist only on one side. It would answer no purpose in the present investigation, to refer more particularly to the first variety; it is the second which affords us opportunity of seeing how, during the progress of the disease, a diminution in the mass of their blood takes place, nearly progressively with the diminution of the extent of lung fit for the purposes of respiration. Every one who is at all conversant with the causes of this disease, and has paid even common attention to its phenomena, must be fully aware of this fact, and have

seen such patients, as the disease advanced, become as completely cachectic as those of the first variety.

This diminution of their blood may owe much of its cause to the copious evacuations the patients become liable to, and hence we do not cease to look upon it, so far, as a prognostic of evil, yet, for all this, we cannot help seeing it answers at least one good purpose, and that is proportioning the mass of blood to the extent of lung capable of effecting the changes it requires. Now, this is by no means an unimportant end gained, probably at the expense of some evil. The numerous accidents that result from the imperfect circulation of the blood, a very frequent consequence we know of the absence of this proportion, are hereby avoided, and the patients insured a gradual and easy termination to their sufferings, from the decline of all their forces, in place of a series of harassing struggles from the interruption of the circulation. This proportion is, in all such cases, so rigorously maintained, that we often find the whole amount of sound lung reduced to a mere fraction, and yet the circulating and respiratory functions unembarrassed.

It would be easy to adduce from other pulmonary diseases, examples of the benefit derived from the maintenance of this proportion, but I will content myself with selecting pneumonia, which affords them in abundance. No disease affords greater diversity of symptoms than this, much of which appears referrible to the operation of this principle. In strong plethoric individuals, we find the least encroachment on the lungs, by the engorgement of the first stage, attended by evidence of the most violent disturbance of respiration and circulation; while in pale, exsanguine individuals, we are often afforded opportunities of seeing a whole lung rendered, by hepatization, unfit for the purpose of respiration, without any, but a very partial, disorder of these important functions being excited. It is impossible to view these opposite states, consequences nearly of the same cause, without attributing much of the ease exhibited in the lat-

ter, to the mass of the blood bearing a mean proportion to the extent of sound lung, and this supposition derives great weight from ascertaining, that, in the former, the abstraction of a portion of the circulating mass is followed by immediate relief to the more violent symptoms it evinced. We should take a limited view of the effects of this abstraction of blood, did we refer all the good that results from it, solely, either to the contracting of the heart's action, or the suspension of the inflammatory process. These effects may, no doubt, ultimately follow, but the immediate benefit derived from the operation, is the reduction of the quantity of blood to a proportion better suited to the extent of lung capable of transmitting it. I am aware that a different view of this matter is taken by a justly celebrated modern physiologist, I cannot help thinking much too exclusively. The one now given appears more consonant with all we know of the general phenomena of pulmonary disease, and it is just possible that Dr. Edwards may have been led to adopt the other, more from its appearing to strengthen the conclusion deduced from the results of his experiments, than from an *a priori* conviction of its correctness.

Much, therefore, of what we find in pulmonary disease leads us to conclude, that a certain benefit is derived from the maintenance of this proportion; I do not, therefore, think it necessary, and especially as having no claim to originality in bringing the matter forward, to take up more time in shewing it is to such a cause we are to attribute the immunity of phthisical patients from symptoms of obstructed circulation.

It may now appear evident how the difference, with regard to sanguination, we found characterizing our patients, operated in the production of this distinguishing phenomena. Their lungs had undergone a complete infiltration with tubercular matter; the extent fit for the purpose of respiration was greatly curtailed, and they were, therefore, only adapted for transmitting a diminished quantity of blood. But this diminution of blood nothing indicates having taken place, there were none of

the customary evacuations to have effected it, and we cannot but believe the quantity of nutritious food used acted in any other way than towards its promotion. The very opposite of this, on the contrary, appears to have been what *was* affected; a large quantity of blood continued in the vessels, and was therefore out of all proportion to the extent of lung that remained fit for its circulation. It is very true, especially in the second case, that some abatement of this disproportion took place at different periods, and that its consequences were for the time avoided; but it is equally certain, that this alleviation was only temporary, for every thing proves the evil not to have been slow in returning. The disproportion then continued to operate, and I think we are justified in inferring that it caused the tubercular infiltration to act as an obstacle to the circulation. What justifies us in inferring this, is, as already shewn, the very great reason we have for believing, that, in other cases of phthisis, the disorganization of the lungs is only prevented having a like effect, by the mass of blood having undergone such a diminution, as to render it proportioned to the extent of lung capable of effecting the changes it requires.

It is exceedingly necessary, that the fact of an obstacle to the circulation having existed in our cases, should be fully recognized; and it is fortunate it can be established, without any reference to the supposition alluded to above, by the actual phenomena the cases presented; yet as the dependance of this obstacle on the condition of the circulation cannot be proved by any such direct evidence, the difficulty in shewing it will not be denied, if the supposition in question is untenable. I am very much mistaken indeed, however, if a cautious investigation of those phenomena will not afford some reason, in addition to what has been already advanced, for considering this supposition as correct. I will proceed, therefore, with the consideration of the remaining features of the cases, and then may be seen what assistance is derived from them in supporting it.

As the symptoms have been already discussed, and offer no other material for comment, except to point out, that, as far they go, they indicate an obstruction to the circulation, we will pass on at once to the lesions detected at the post mortem examination. The state of the heart is the first that demands attention.

In both patients we have seen this organ presenting a very considerable dilatation of its right cavities ; an alteration it was long, and especially in the second case, suspected to have undergone during their life time. It is scarcely necessary to repeat here, what was mentioned before, that all the phenomena of the cases were at this time referred to this alteration ; and considering the little evidence of disease afforded in any other quarter, I trust the conclusion was natural. It cannot be denied now to have been incorrect, and so in a very great degree ; because there appear positively no grounds for attributing *even* the symptoms of obstructed circulation to this cause. On the contrary, I think it cannot be doubted, that the lesion of the heart was *actually* a *consequence* of the obstruction in question. We see the same circumstance occurring daily ; many diseases of the lungs determine a dilatation of the heart, and considering the relations that exist between the organs, we can readily comprehend the reasons. In *all such cases*, we cannot but agree with M. Bertin in referring the symptoms, not to the lesion of the heart, but solely to the obstacle instrumental in its production. There appears no reason to believe our cases formed an exception to this rule.

Readily, however, as we recognize and understand this dependance of dilatation of the heart on obstruction in the pulmonary capillaries, it is not to be overlooked that a disease like phthisis, in which this obstruction becomes so great, should seldom give rise to it. Such however is a fact, of which daily experience may convince us, even had it not been established beyond doubt, by the researches of M. Louis. This indefati-

gable pathologist has clearly shewn, that in phthysical patients, any alteration of the heart, other than a diminution of bulk, is hardly ever effected; and Andral, who recognizes the data of M. Louis, assigns as an explanation of the anomaly the diminution of the blood that has taken place in the patients. Much leads us to coincide in this opinion, and surely that which our cases afford, tends in any other way than to oppose it. We have seen, that if they differed from the ordinary class of phthysical patients in any one particular more than another, it was in this, that no diminution had been effected in the mass of their blood, and we need not, therefore, be surprised when we find a corresponding difference in the condition of their heart. In fact, had the lesion in question been wanting, the evidence in favour of the views taken of the pathology of the cases would have been incomplete, we can with such difficulty reconcile the fact of a great obstacle in the pulmonary capillaries (along with a certain mass of blood in circulation) existing in connexion with a normal condition of the right cavities of the heart. It need hardly then be said, that the state of this organ presented by our cases affords, in addition to a proof of the correctness of Andral's opinion, a strong corroboration of what has been advanced in explanation of their phenomena.

The congested state of the mucous membrane* in many parts of the alimentary canal, and especially one of the consequences of this in the second case, the hæmorrhage from the stomach, will, no doubt, be best explained in the same way. Different sequelæ of active hyperæmia in these organs, are, every one knows, almost invariable features in the ordinary cases of phthisis; but a mere congestion of blood in their vessels, not traceable to activity, is of very rare occurrence. In

* I have accidentally omitted here the congestions of the lungs. It is evident they resulted from the same cause as the abdominal, consequently, they offer the same arguments and conclusions.

fact, the parts of this membrane in which inflammation has left even the greatest traces of its ravages, are often distinguished by absence of vascularity.

In our cases, with the exception of the black patches in the colon in the second case, which may possibly have been the remains of the old irritation that existed in this part of the gut, inflammation appears to have performed but an unimportant part; few organs afforded any traces of its effects, and the intestinal canal offers nothing to make us infer it proved an exception in this respect. The vascularity detected in the different portions of it is more easily referrible to congestion from obstruction, because it appears philosophic to attribute to similar causes all such appearances if they are not indicated during lifetime by symptoms that denote inflammation. The symptoms, in truth, must be our guide here as elsewhere, for we have attained to know, that many necroscopic phenomena do not always point out the condition in which they originated. Reasoning in this way the conclusion appears solid, that as the necessary symptoms of inflammatory action were absent nearly throughout the whole progress of the cases, the congestions of the intestinal mucous membrane are not due to this cause. In fact, they afford again in this respect a striking analogy with cardiac diseases, in which we find the consequences of inflammation almost excluded, while congestive phenomena are afforded in abundance. It is scarcely necessary to say, therefore, that the congestions afford additional evidence of an obstacle having been opposed to the circulation of the blood.

Although I have extended the limits of this memoir much beyond what I originally intended, and probably also considerably further than the interest of the subject entitles it to, I cannot refrain from alluding to certain circumstances connected with the congestions observed in these cases.

It may be recollected, that in the first case, neither loss of appetite, thirst, pain, nor any of the usual symptoms of irritation of the stomach existed at the time the hæmatemesis was

prominent. The absence of these phenomena we explain on the supposition of the hæmorrhage depending on congestion from obstruction. So far so well. In the second case also, a congestion of the abdominal viscera appeared to form, subsequent to the last engorgement of the lungs. It is necessary to bear in mind the latter fact, because the supervention of the one congestion upon the other gives us every reason to infer, that the last at least was the mere effect of obstruction to the circulation. As far as cause went, therefore, it differed in no respect from the congestion of the stomach observed in the first case. But its *effect* on the economy was very far from being similar; the most urgent symptoms were the consequence of its existence. The appetite of the patient, which until then had been voracious, ceased altogether, the abdomen became the seat of a general tumefaction and soreness, diarrhœa occurred also, and the patient experienced a degree of febrile paroxysm when ingesta entered the stomach. These paroxysms, however, lasted but a short time, and again gave place to the nearly total absence of heat and circulation which had characterized the cases at this period. It is not the least important feature of the case at this time, that along with all the symptoms mentioned above, there should have existed a state, except at the period of the paroxysms, in which the temperature and pulse of the patient were at their minimum.

If the facts of the case, therefore, regarding this point, be as here stated, and there is much that appears to favour the supposition, it results, that the hyperæmia from obstruction may be attended by phenomena, approaching more or less near those we consider characteristic of inflammation. The subject is an interesting one, but it does not appear to have met with attention from the profession. Diseases of the heart are, principally, those we might expect to afford instances of its occurrence, yet in no work on this subject, with which I am acquainted, is there any notice of it to be found.

Returning from this digression, it remains to be stated, that

the symptoms, the state of the heart, and the congestions of the abdominal viscera, all coincide in shewing, that an obstacle was opposed to the circulation of the blood. We have also seen this obstacle to have been the tubercular infiltration of the lungs; but all we have ascertained with regard to the patients in which this infiltration is so frequently found, without being attended by any such effects, surely authorizes us to conclude, it would not have been so either in our cases, except in a transitory and unimportant degree, but for the condition of the circulation necessarily applied to its influence.

I cannot take upon myself to mention any particular signs or symptoms that deserve being considered diagnostic of this affection, yet I think its existence may be suspected, when we find in young persons symptoms of obstructed circulation, without any very evident lesion of the heart or lungs. The discovery of defective resonance in different parts of the chest, will of course add to such suspicion, but this sign cannot be expected to be a constant one, as we find pulmonary tubercles seldom give rise to it, except when they are in a state of aggregation. The habits and condition of the patients will of course be taken into account; a state of apparent plethora will be highly confirmatory of its existence, while an opposite condition will lead us to a contrary supposition. It must not be overlooked, however, that an appearance of cachexy may be assumed by individuals whose mass of blood is greater than demanded by the wants of the system; hence we may infer, that in such cases any great diminution of extent of lung by tubercular disease, may give rise to symptoms bearing some resemblance to those described as characteristic of this affection. Yet as such subjects are never late in exhibiting the usual phthisical phenomena, it will follow, they can only for a short time be distinguished by those of obstructed circulation.

It appears almost unnecessary to add, that general bleeding is the remedy on which we must rely for the relief of the immediate results of this affection, while a carefully regulated

diet, with moderate exercise, offers the greatest prospect of preventing its recurrence. The low state of the general powers of life which attend some of the congestions, might naturally deter from the use of the lancet, did we not bear in mind, that a state of adynamia is produced more frequently by oppression than exhaustion of the vital forces.

BIBLIOGRAPHIC NOTICES.

Practical Observations on Cholera, particularly in reference to the Treatment of the Disease, as it has appeared in England since the beginning of the year 1832. By RICHARD CRANFIELD, A. B. M. B., lately a Resident Physician in the Cholera Hospital of Grange Gorman, Dublin. Hodges and Smith, 1834.

THIS treatise is, what it professes to be, strictly practical, and we earnestly recommend it to our readers as an excellent epitome of what is known upon the subject. Our chief object in noticing this little work, is to point out a mode of practice which our author recommends, and which we ourselves have found extremely useful, namely the exhibition of acetate of lead. It will be seen by the sequel that we exhibit the remedy in a different form from Dr. Cranfield, and likewise that we have used it in much larger doses and more frequently repeated. With respect to the *types* of the cases in which this remedy has proved beneficial in our hands, our experience agrees in every respect with Dr. Cranfield; we only differ as to the mode of giving this remedy, and the extent to which it may be employed. In recommending a powerful metallic astringent, we know that our views concerning the nature of cholera are liable to be misunderstood, for many will be inclined to infer from this practice, that we consider the disease as a mere vomiting and purging. To this we answer, that although the first step in the cure of those cases where much fluid is discharged from the stomach and bowels, must consist in arresting that discharge as soon as possible, yet, even when this has been accomplished, much remains to be done, and other remedies must be employed, before the cure is effected. Again, there are many, and those the very worst cases of cholera, where the loss of fluid by the alimentary canal is but trifling; nay, in some it even happens, that the whole system seems at once to sink under the influence of this poison, before the symptoms usually developed

in the different tissues and organs have had time even to commence. This much we have thought it necessary to premise, in order to prevent our views concerning the nature of this disease from being mistaken.

By avoiding all theoretical disquisitions, and rejecting all irrelevant matter, Dr. Cranfield has contrived to include within the compass of 140 pages, a consideration of almost every question that can arise during the treatment of cholera. He enjoyed, indeed, an excellent opportunity for observation, and had the benefit of seeing the practice and of hearing the remarks of Doctor Lindsay, the superintending physician of Grange Gorman-lane Hospital; an advantage the value of which can be only appreciated by those who witnessed the indefatigable zeal and practical tact of that officer in the discharge of his arduous duties.*

The following observations must be borne in mind, in order to prevent the erroneous application of certain modes of treatment recommended in subsequent parts of this treatise.

"No disease," says Dr. C., "perhaps, has presented itself to our notice in so many and in such different shapes, as the cholera which has been lately epidemic in Ireland. In so great a degree does its protei-form nature prevail, that if the chief symptoms be abstracted from its several varieties, scarcely will a single one remain common to all of them; nor could the extreme cases of the malady be recognized as offsets from the same root, did not their occurrence at the same time and in the same place, and their connexion by intermediate links, prove their identity of origin; to which may be added, that they all evinced a tendency to pass into the same awful state of collapse, which thus appears to be its radical form. It would therefore be impossible to treat of all these varieties under one head, and as they collect themselves into three principal groups, I shall consider the disease under so many heads. In one group the most marked symptoms are those of collapse: this may be called the type of collapse, or the *blue type*. In another, spasm is the most prominent symptom: this may be denominated the *spasmodic type*. And in the third, a febrile state prevails almost from the onset: this may be designated the *febrile type*.

"This division is not only convenient for description, but really one of much practical importance, for the appropriate modes of treatment for these several types are of a very different nature. Had it been adopted from the first, much unnecessary dispute concerning the effects of remedies might have been saved, more correct notions of the manner of treating the disease would now prevail, and, I apprehend, many lives would have been rescued from the doom which the inappropriate treatment made use of was more than sufficient to occa-

* During six months upwards of 5000 cases were admitted.

sion. I am aware that the terms by which I have designated these three divisions of the disease are not unobjectionable: for some of the worst cases of the blue type are not blue, but pale throughout; many of the spasmodic type are very blue at first; and fever is very generally met with in the latter stages of both these. But the names blue and spasmodic have been much applied to the two first divisions; and the term febrile is so peculiarly applicable to the last, that it forces itself upon us."

In the blue type of cholera our author recognizes, for practical convenience, three stages, viz.; the premonitory diarrhœa, the first grade or degree of collapse, and the second grade or degree of collapse; and he then presents us with an excellent sketch of the symptoms which characterize each, together with an epitome of the morbid appearances observed on the dissection of those who have died of the blue type. From the latter we learn, that he is adverse to the opinion, that the morbid appearances observed in the stomach and intestines arise from inflammation, and warrant the adoption of the antiphlogistic treatment. This question has been discussed with much warmth, both in India, England, and the continent. We entirely concur with our author's views upon this subject, and we regret that our limits prevent us from transcribing them for the benefit of our readers. We may remark, however, that in addition to the names of Andral and Dupuytren, who have both declared themselves unfavorable to the hypothesis of inflammation, we may mention that of Dr. Phœbus, whose *Morbid Anatomy of the Oriental Cholera*,* is the most elaborate and classical work yet published on the subject: but it is time to hasten to the mode of treatment recommended by Doctor Cranfield, from whose treatise we have selected the following extracts, the length of which the reader will readily forgive for the sake of the valuable matter they contain.

"Treatment of the Premonitory Diarrhœa, and Serous Purging, prior to Collapse."

"When cholera is epidemic in a district, a lax state of the bowels or diarrhœa is very prevalent amongst the inhabitants. Thin, feculent, bilious stools are passed in various frequency, and are usually attended with some griping and debility. Persons thus affected are able to go about, and to attend to their ordinary business; but they are extremely prone to be attacked with cholera in

* Ueber den Leichenbefund bei der Orientalischen Cholera, von Dr. P. Phœbus, &c. Berlin, 1833.

some form. These stools glide gradually into the characteristic discharges; it may therefore be regarded as a premonitory symptom, and its management may with propriety be noticed here previously to our entering upon that of the blue type. Castor oil with laudanum and Daffy's elixir, Gregory's powder, and other aperients, have been popular medicines for this complaint; but this practice cannot be too strongly reprobated, for every one experienced in the disease knows that many have been precipitated into their grave by it. It were well that the advice of Doctor Sydenham had been more attended to: he has compared* this practice to an attempt to extinguish fire with oil, and the comparison is just. Whilst this state of the bowels exists, the individual is in a precarious situation: he is walking on the brink of collapse, and he knows not the moment he may be tumbled into it; even in an hour he may be so altered as scarcely to be recognized by his friends, and may be removed beyond a hope of recovery. The examples of this have been numerous. Instead of increasing, we should at once check the diarrhœa. This may be effected with certainty and safety by some of the vegetable astringents. Sometimes a single dose of tinct. kino and tinct. catechu in aq. menthæ pip., with tinct. cardam. comp., stops it. When there are severe griping pains in the bowels, small quantities of laudanum or opium may be given: in these cases the elect. catechu comp. and pulv. kino comp. are useful preparations. When there is flatulence or acidity, magnesia or creta præparata should be combined. And if there be a diminished action of the liver, not referable to weakness of the circulation, small quantities of hyd. cum creta or pil. hyd. may be conjoined (calomel is apt to gripe): otherwise, they had better be omitted, for mercury is utterly useless as a preventive. Cases have been recorded† wherein persons affected with pytalism have been seized with cholera in a severe form, and I have seen similar instances at the Grangegorman-lane Hospital. In those cases of diarrhœa, diaphoretics and nauseating emetics have been recommended;‡ this practice is very apt to throw the patient into collapse.

“ This bilious diarrhœa, if not properly treated, may gradually pass into the characteristic purging of cholera, or the latter may commence at once. When this occurs in weak or elderly persons, they are very soon prostrated. The same happens even in the youthful and strong, when the mind is depressed by grief or fear; but when a strong and vigorous person is attacked under other circumstances, it is astonishing to what extent serous purging sometimes takes place before collapse is induced.

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“ A person thus affected with serous purging which does not advance with rapid strides toward collapse, is in so recoverable a state,

* Opera Univ. Lond. 1705, p. 138.

† Bombay Rep. p. 9.—Bengal Rep. p. 151.

‡ The Cholera of Sunderland, by W. R. Clanny, M. D., pp. 89 and 93.

that if a fatal issue ever ensue, it must arise from mismanagement. Calomel and opium have been the favourite remedy for this: and that it possesses some influence in checking it I cannot doubt, for I have found it in many instances sufficient to put a stop to the symptoms. But the symptoms sometimes subside without any treatment, and in other instances patients have been sent into hospital under the influence of opium, with the purging still unchecked, and have died: I cannot therefore recommend this treatment. The most successful that I have made trial of consists in the exhibition of astringents,—those mentioned above; or the *acetas plumbi*, if the purging is profuse. The patient should be sent to bed: from ten to twenty grains of *acetas plumbi*, dissolved in half a pint of distilled water, by the aid of ten minims of *acet. dist.*, should be administered *per anum*, and either the vegetable astringents or *acetas plumbi* may be given by the mouth. The latter may be given in doses of two grains every second hour, dissolved in distilled water, with the addition of a few minims of *acet. dist.* Very few doses are necessary, and in twelve or twenty-fours the patient will be commonly found free from complaint.

“Treatment during Collapse.

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“When a person is seized with cholera, he should at once be made to assume the horizontal posture; if the bed-room to which he is to be removed is on another floor, he should be carried to it as much as possible in the recumbent posture, and not suffered to walk. No one would *a priori* expect, and perhaps few, who have not witnessed it, will credit the degree of injurious influence exerted by the upright position, particularly in ascending a height. Persons hearing that many died in consequence of their not having made a sufficiently early application for relief, have come to Grange-gorman-lane Hospital, to inquire “whether they were getting cholera,” as they had a few loose stools. In some of these instances the symptoms were so slight, that they were admitted rather as a matter of precaution than from any strong proofs of the existence of the disease. They felt themselves so strong, that they indignantly refused to be carried up to the ward, as was customary, and they were consequently allowed to walk. On their reaching their destination a visible change had taken place: they asked for a seat; their countenance was altered, their eyes had an amaurotic appearance, the pulse was fluttering, and purging set in. Some of these patients died. In the earliest case or two of this sort that I met with, I thought I must have formed too favourable an opinion of the patient’s state on his first appearance; but subsequent instances proved that it was not so, and it became a matter of general notoriety in the hospital, that the cases of those who walked to their wards, *cæteris paribus*, turned out more unfavourably than those of others. One of the parishes in this city sent its patients to the hospital sitting in a covered inside jaunting-car. These so frequently arrived in a dying state, with the head lying on

the shoulders, and the eyes amaurotic, that I was enabled from it to recognize them amongst the other patients as having been conveyed in that car; and sometimes, on opening it at the hospital, the person has been found absolutely dead. At length, this parish was provided with a horizontal conveyance, and thenceforward such hopeless cases were not brought from it.

"The patient being placed in bed requires some agreeable cordial after the fatigue of removal, stripping, &c. A spoonful of punch made with good whiskey, or of mulled wine, may be given at short intervals. No time is to be lost in administering an astringent enema: that of the *acetas plumbi*, as directed in p. 23, is the best I know of. If this be quickly voided, it must be as quickly repeated; but if it be retained half an hour, we may await the further progress of the purging; and if in the second half hour another motion take place, it should be repeated. Heat should be applied to the feet; and if necessary to the sides, where the hands may have the benefit of it. The most convenient mode of effecting this is by a tin stomach-warmer filled with hot water, a fold of the blanket being interposed. This is a very useful utensil in the management of cholera patients: enveloped in flannel, it retains its heat for some hours, and it may be renewed in a moment, or modified in any required degree. When not at hand, its place may be supplied by jars and bottles, or by bags of heated salt. Heat thus applied imparts a sensation of comfort to the patient, and it appears to possess some influence in relieving cramps; but a bath of air heated by spirit of wine, as first introduced in India, and at one time tried on a large scale at Grange-gorman-lane Hospital, is, to say the best of it, useless; and sometimes I have seen the patients injured from their alarm lest the bed-clothes should take fire.

"We shall suppose the patient to be in the first grade of collapse. If he has not already vomited, it is a matter of much importance not to unsettle his stomach, as this is attended with an increase of collapse: and I think it, therefore, better to postpone the administration of medicinal stimulants, although they may appear indicated for the prevention of a further increase of collapse. We shall best succeed in preventing further collapse by restraining the purging, by preventing vomiting, and by keeping up the patient's spirits. If serous fluid be poured out into the stomach, vomiting will ensue; and to obviate this effusion, the *acetas plumbi* should be given by the mouth, as well as in enemata. Three grains may be given in $\frac{3}{4}$ i. of distilled water with five minims of *acet. dist.*; or it may be given in punch, (if made with distilled water), and thus the appearance of medicine will be avoided, the idea of which often carries nausea with it. It may be repeated every hour in two grain doses until the serous discharge shall be materially diminished, or until from ten to fifteen grains shall have been taken. It may be apprehended that so free an exhibition of this salt would be attended with unpleasant effects. I commenced its exhibition in September, 1832: since that I have administered it many hundred times, cautiously feeling my way up to the doses recommended above, in which I have given it to between

one and two hundred persons ; yet none of the deleterious effects of the metal have appeared. The extent to which it might be given with impunity I have not ventured to fathom ; but thus far, at least, it is perfectly safe. I endeavoured to preserve the metal in the state of an *acetate*, on the authority of a paper published by Doctor A. T. Thompson, of London. In October, 1832, Doctor Falloon was so struck with an account given him by one of my patients, of the comfortable effects of the *plumbi acetate*, that he resolved to try it : he had an opportunity of doing so in one or two months afterwards, and now, after upwards of a year's most extensive experience of it in *enema*, he informs me that he has not met with a single instance wherein it was productive of injury. It will be sometimes found to fall short of our wishes in checking the serous discharge ; but on the whole, it is a valuable medicine in the treatment of the blue type ; and it is much to be regretted that its suggestion by Baron Dupuytren, which took place so early as February, 1832, was not sooner and more extensively acted upon. The patient must now be watched with the closest attention, for in the space of an hour a material change may take place in him. In general, he does well, and is out of danger in the course of twenty-four hours.

“ But if we find him to lose ground, and to be sinking into the second grade of collapse, we cannot defer stimulants longer. Carbonate of ammonia is one of the best : from twenty to thirty minims of the *sp. ammon. arom.* or five grains of the *ammon. carb.* may be given with one or two drachms of the *sp. lavend. comp., tinct. card. comp.,* or *tinct. cinnam.,* in an ounce of *inf. menthæ. simp.* with a little *syr. zing.* ; and it will be necessary to repeat it at intervals of an hour at first, and afterwards of two or three hours. The *plumbi acetate* cannot, of course, be now given by the mouth ; but when there has been a prospect of the stomach bearing *catechu* or *kino*, I have found their addition to a draught similar to the above very beneficial.

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“ The majority of cases which present themselves do not admit of the exhibition of these vegetable astringents, as they are apt to sicken the stomach. We must, in such instances, try carbonate of ammonia without them, as recommended in p. 23 ; or with the substitution of *aqua calcis* for the *inf. menthæ.* Frequently carbonate of ammonia thus given increases vomiting ; I have then sometimes found advantage from adding it to an effervescing draught of citrate of soda. This is less nauseous, and more likely to be retained by the stomach than one of citrate of ammonia. When we succeed in the exhibition of ammonia, we must be careful not to continue it too long. This is an error I often fell into at first ; for if it be given to a pulseless patient, and continued until the pulse recover its natural development, even though it be then stopped, he shall have gotten too much. As soon as the pulse is distinctly perceptible at the wrist, the intervals must be lengthened ; and in laying it aside altogether, we must anticipate the full restoration of the pulse, instead of following it. The cessation of the purging, vomiting, and cramps—the return of heat to the tongue—the removal of the clammy state of the skin, and tran-

quillity of the patient, are also indications for diminishing its quantity, for these symptoms bespeak the approach of reaction.

"Camphor sometimes answers very well; but, to be of any material use, it must be given suspended in an amylaceous emulsion, or in pills properly made. The liq. æth. ol. and sp. æth. nitr. in small doses, are good auxiliaries, when the stomach retains them; but when irritable, it is useless to try either these or camphor. A drachm of sulphuric æther in an ounce draught, is so stimulant a dose, that it is always injurious. Such acrid stimulants as mustard and capsicum occasion a great deal of local irritation, and are particularly apt to injure. Musk has been given; but I am not aware that it has been tried in a sufficient number of cases to determine its character.

"If ammonia or other stimulants increase vomiting, their use must be abandoned; for whatever slight stimulus that may be imparted to the system by them, during their short stay in the stomach, is more than counterbalanced by the debility occasioned by vomiting: and thus, instead of invigorating the patient, they really increase his state of collapse. A considerable time elapsed before I properly understood this effect of stimulants; for observing the patient to sink more and more into collapse, I attributed it to the intensity of the disease, and considered stimulants the more indicated; whereas in truth, this increase of collapse was in many cases a result of the exhaustion occasioned by vomiting. The mere occurrence of vomiting is not, however, a sufficient reason for withholding mild stimulants altogether; for when serous fluid is poured out into the stomach, it will discharge it, except it be in a state of atony, and stimulants appear rather to diminish than to increase the quantity of the serous fluid. It is the increase or the frequency of vomiting that is to induce us to lay them aside. Another circumstance which forbids the exhibition of stimulants is the vomiting of mere mouthfuls of fluid, or a straining after emptying the stomach.

"When we cannot employ stimulants, aqua calcis, either alone, or with a small proportion of good whiskey, generally agrees with the stomach, and helps to check the serous discharge. An ounce may be given every half hour or hour till the vomiting and purging cease. A trial of aqua calcis was suggested to me by Doctor Falloon, and my experience of it leads me to say, that thus given it is a valuable addition to our resources. Mr. Corbyn has mentioned it* as a mean of diminishing thirst. The following case, though tedious, I shall relate, as it is an instance of recovery (due I think to the use of aqua calcis) from a form of cholera so hopeless, that I considered it useless, except *pro forma*, to order any thing. It also exemplifies the sudden changes and embarrassing difficulties met with in the management of cholera patients, who have been rescued from a state bordering upon dissolution.

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* Treatise on the Epidemic Cholera, by Frederick Corbyn, Surgeon, 8vo. Calcutta, 1832, p. 204.

"Some patients are met with who do not bear even aqua calcis. An ounce or two of soda water poured on a teaspoonful or two of brandy or good whiskey, with a little sugar, is then frequently found a refreshing draught; and sometimes, when all ordinary drinks have been in vain tried, this will remain on the stomach, and relieve the burning pain so often complained of.

Thirst is one of the most distressing sensations that patients complain of, and one of the most difficult for the physician to deal with. If it be indiscriminately satiated, the patient will be harassed with vomiting, and will be rendered worse: if, on the contrary, we deny drink, he will be reduced to such a state of desperation, that he will swallow any liquid he can get at. I knew a woman to drink more than half a pint of a mixture of the strongest mustard and water, though she knew it would have an emetic effect. The distress of mind occasioned by thirst exerts an injurious influence on patients so much greater than the gratification of it, even *ad libitum*, that we must alleviate it: and therefore how this may be effected with least injury to him becomes an important question. In general, cold water is both the most gratifying, and the least apt to excite vomiting. At Grangegorman-lane Hospital, cold drinks were at first carefully prohibited on the authority of the army surgeons in India, who considered them to be almost always fatal.* At length the mistake of forcing warm drinks upon them was discovered; a man was appointed to the daily occupation of procuring good spring water, and I am sure I state the experience of all who were medical officers of the establishment, in saying, that it not only did not prove fatal in any form of the disease, but that, when sought for, it agreed better with them than any other drink. Cholera patients are great epicures in drink, and it is remarkable with what acuteness they distinguish the water of one spring from that of another, even when their tongue is cold and flabby. Soft or mawkish water occasions disgust and nausea in them; whereas good water sometimes stops vomiting, especially if it is that of a favourite well, or if the patient is greatly delighted at getting it.

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"The most judicious manner for a patient to quench his thirst is to rinse his mouth with water every ten or twenty minutes, and to spit it out. This relieves thirst almost as well as if he swallowed it, and disturbance of the stomach is avoided by it. We cannot always prevail upon patients to abstain from swallowing the water; some, who had been harassed by vomiting, and who were glad to compromise with it on any reasonable terms, I induced to adopt it, and they required no persuasion to continue the practice. Cold water, when desired, never injures: but I cannot make the same report of other appetites. Patients frequently crave buttermilk or acid beer with as much vehemence, and imagine that a drink of either would save their

* Madras Rep. p. lxxv.

life ; but these almost invariably injure, and if long continued, they become sensible of it themselves, and request a change. Mr. Annesley strongly recommends* drink acidulated with nitric acid : I think it deserves a trial. I endeavoured to make the subject of the last case drink water acidulated with sulphuric acid, considering it safer ; but I could not prevail.

“ A few prefer warm drinks from the first ; but even those who call for cold water for a day or two, in general become tired of it after that, and ask for something warm and nourishing. At this period they have a great sensation of weakness, and those drinks, if light, usually agree well, and tend to revive them. Coffee or tea, light bottled ale in small quantities, and soda water with wine or good whiskey answer very well. Beer and porter never agree : they lie too heavy on the stomach, and sometimes I found them to occasion coma.

“ A sensation of weight or uneasiness at the *scrobiculus cordis* is a symptom almost invariably present. Frequently it amounts to pain, and is of so teasing and debilitating a nature, that some measure must be taken to alleviate it. The best I know of is the application of a mustard cataplasm to the spine or to the epigastrium. The *sinapis nigra* is that which should be employed : the *s. alba* is almost useless for this purpose. The space of time it is to remain on must be regulated by the feelings of the patient. It must not be allowed to torture or fret him : on this hangs the character of a sinapasm in this disease. When the patient has been previously made to expect some smarting, but at the same time relief from its application, he bears with it longer and with more good humour than he otherwise would.—Sinapisms should not be applied cold, as a chilliness and tremor are frequently occasioned by it.

“ Cramps sometimes commence in the first grade of collapse, but more frequently in the second. In this type the extremities are the parts chiefly attacked ; the lower usually : when the upper are attacked, either primarily or subsequently, the case is generally a severe one. In the third grade of collapse, the muscles occupying the fossæ on either side of the spinous processes of the vertebræ are often affected. It seldom happens that cramps are altogether absent. When this does occur, it takes place in weak and debilitated persons, and it is a bad symptom, for it implies great atony : but I am not warranted in regarding it as so fatal a one as most writers represent. Mild cramps, not occurring early in collapse, and not frequently recurring, constitute the most favourable state. Violent paroxysms of cramps, frequently returning, are nearly, if not quite, as bad a symptom as their total absence, for they precipitate the patient into an alarming state of collapse, and such cases generally run a rapidly fatal course. Their alleviation is therefore a matter of great moment. In

* Sketches of the most prevalent Diseases of India, by James Annesley. Lond. 2d Ed. p. 174.

a great majority of cases, a long, narrow, mustard cataplasm, applied to the spine, produces some relief. It is also proper to rub the cramped limb with a stimulating liniment: a mixture of mustard, oil of turpentine and of olives, answers very well. The good effects of this will be frustrated if it be continued so long as to annoy the patient. Inexperienced nurses should be directed not to rub the shins. It is useful to bandage with a flannel roller the limb still smeared with the liniment. When the hands and forearms are cold and wet, it is advantageous to bandage them in the same manner, even though they be not cramped: the patient in this state of collapse carelessly throws them about, and it is impossible to keep them covered otherwise. When cramps have continued violent after a trial of these means, I have resorted to the subnitrate of bismuth, or oxide of zinc. Opium will extinguish cramps to a certain extent: but really nothing is gained thereby, for the patient's life is generally extinguished also by it. Compression of the limb has been recommended. I have seen this diligently tried in various forms, but I never witnessed permanent benefit to result from it. At first the part is numbed by it, and the patient conceives himself much relieved; but he soon becomes tired of it, and ultimately it proves injurious, by suspending the circulation, which is already too feeble.

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“Of some Peculiarities met with in Cases of the Blue Type.”

“The foregoing remarks relate to the general treatment of cases of the blue type during collapse; but some peculiar symptoms are met with which require a separate consideration. One of these is very frequent vomiting. It is a general opinion that vomiting is a good symptom in cholera. The truth of this varies with the state of collapse in which it occurs. In the first grade it is a bad symptom: it indicates that serous effusion into the stomach is taking place, that the patient is very liable to fall into a still greater degree of collapse, and that medicines swallowed will be attended with an uncertain effect. In the second and third grades, its total absence is a bad symptom, for it implies a dangerous state of nervous exhaustion or atony. From this latter circumstance, and from the occasional recovery of cases in which vomiting had been so obstinate that death was expected, some have concluded that this is a mean adopted by nature for the patient's recovery; and therefore, that it ought not only not be interfered with, but to be even encouraged. Accordingly we have been recommended to give emetics to produce full vomiting, as it has been termed. Why should we not also regard the dejections from the other extremity of the alimentary canal as a therapeutic mean of nature, and give purgatives to produce full purging? And why should we not regard the cramps in the same light, and endeavour to increase them? This doctrine is not sanctioned by either reason or experience. Whilst obstinate vomiting continues, the patient will not make any progress towards recovery. If he is taking stimulants, they

must (as already mentioned) be laid aside. A sinapism should be applied to the spine or epigastrium, and this should be succeeded by a blister, if necessary. In the application of blisters to cholera patients, the skin should be previously rubbed with tinct. canth., oil of turpentine, or with hot vinegar. Internal means must be at the same time resorted to. When the vomiting is attended with spasm and straining, I have found metallic astringents to be attended with most success. Of these I have most frequently used nitrate of silver. Immediately after vomiting, I have given from three to five grains dissolved in ℥vi. or ℥viii. of distilled water. It is seldom retained longer than a few minutes, and I have frequently had occasion to repeat it once or twice before the irritability of the stomach was removed. In a few instances the dose has been retained altogether, and in these its power of removing spasmodic action and the purging has been more remarkable. I have heard of ℥i. of this salt having been given in ℥i. of distilled water with advantage. I have not ventured upon so concentrated a form as that : but from a trial which I made of gr. v. in ℥i. of dist. water, I think that gr. iij. in ℥vi. will be found safer and more effectual ; and it is reasonable to expect more effect from a draught sufficiently large to come in contact with all the interior of the stomach.

“Nitrate of silver fails in some cases : I have then resorted to subnitrate of bismuth, first recommended by Dr. Leo, or to oxide of zinc. Of the subnitrate of bismuth gr. vi. may be given at first, and gr. iij. every hour afterwards till the vomiting be checked, or till ℥ss. shall have been taken. I have seen it given in a great number of cases in gr. x. doses until ℥i. had been taken, and I have tried it myself in the same quantity ; but the practice is unsafe. In some who had taken it to this extent the pupils became contracted, and the limbs tremulous ; they dozed almost constantly with their eyes open : there was sub-delirium, without pain in the head ; and coma terminated their cases. Dr. Lefevre has justly cautioned us against too free a use of this medicine.*

“When both nitrate of silver and subnitrate of bismuth have failed, I have sometimes found oxide of zinc to remove vomiting and cramps. It may be given in the same manner as subnitrate of bismuth, but we must be very cautious in extending the total quantity beyond ℥ss. ; for in one case wherein I did so, symptoms similar to those attending an over dose of the latter took place. My experience of it is very limited, for as I was treading unbeaten ground, I cautiously confined it to cases where other means had failed, or to utterly hopeless ones. I have found it of service in eight cases out of eleven.

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“The oxide of zinc appears to me to be a medicine of more power and certainty than the subnitrate of bismuth. These and the nitrate of silver distinctly manifest an astringent influence on the mucous membrane ; and so are useful in diminishing purging as well as vomit-

* Observations on Cholera Morbus as prevailing at St. Petersburg. Lond. 1831. p. 76.

ing and cramps. In those who do not take any metallic preparation, the serous dejections are sometimes replaced by black slimy evacuations; but we must always expect black stools after the exhibition of the above and acetate of lead.

"When vomiting is unattended with spasm, alkaline medicines are more frequently beneficial than those metallic preparations, especially when the discharge from the stomach is acid. Potassæ causticæ aqua, magnesia, and aq. calcis are the best.

"One of the most remarkable peculiarities is the vomiting of a green fluid. The period at which this is generally met with is when the symptoms of collapse are beginning to give way to those of reaction, when the purging has in a great measure ceased, and before the ordinary vomiting has altogether subsided, the fluid thrown up gradually assuming a green tint. Sometimes vomiting has ceased for many hours before this green fluid shows itself, or it may not occur till the period of the consecutive fever. I have known it to usher in the disease, but in general it is a late symptom, not taking place usually till the second or third day.

* * * * *

"The subjects of this green vomit are principally cases of severe collapse, but it sometimes occurs in mild cases of the blue type, or even in the spasmodic and febrile types. Previously to its accession, and during its continuance, they complain of a burning pain at the scrobiculus cordis: some express themselves by saying "their heart is burning within them." The fluid in passing the fauces occasions a burning or scalding sensation, and it leaves a sour taste on the mouth.

* * * * *

"It is plain, therefore, that this fluid is bile rendered green by acid secreted by the stomach, and that the muriatic contributes largely to this. In these cases the burning pain and vomiting appear to be occasioned in the first instance, and to be kept up afterwards, by the presence of acid in the stomach: for upon neutralizing it, both are diminished or removed altogether."

* * * * *

"When the green vomit occurs in cases wherein collapse has been of the third grade, it may be regarded as a favourable symptom: it announces the restoration of the secretion of bile, and these cases, if they do not recover, at least hold out longer than we had previously expected. But in milder cases, when there are good grounds for expecting recovery, it is to be regarded as an unfavourable symptom, for it renders them more tedious and complicated. Many writers on cholera have noticed this affection; some have regarded it as a peculiar secretion from the stomach, others as vitiated bile: but I am not aware that any have insisted upon its real nature, or alluded to its proper treatment. The potassæ caust. aq., magnesia, aq. calcis, or (if these be quickly rejected by the stomach) sodæ carb. sic. in pills, should be given every hour or two. Potassa and magnesia succeed best. When any of these has been given in sufficient quantity to neutralize the acid, the burning pain and vomiting are diminished,

and the fluid thrown up is changed to a dirty yellowish-brown colour. If no other effect than the removal of the green colour were observed from the use of alkalies, this alone would justify their exhibition, for patients, on beholding the appearance of the fluid, are greatly alarmed, and consider their case as hopeless: and in vain do we endeavour to raise their spirits whilst they continue to throw up this (which Frank has justly compared to *verdegris*, and denominated *acid* and almost *corrosive*,*) to the extent of perhaps a pint every hour. If the purging has ceased, as frequently is the case, we should open the bowels by mild enemata. The stools passed are green, yellow, or dark. If the vomiting does not soon subside, the application of a long narrow blister to the spine proves serviceable. I do not understand on what principle calomel has been given in this affection. Hiccough is often met with in these cases.

"Vomiting of a yellow or a thin amber coloured fluid, generally attended with a bitter taste, is another symptom met with. This is diluted bile: and the exhibition of acids converts it into the green vomit. The cases in which this is commonly met with are those in whom collapse does not advance beyond the first grade, or the commencement of the second. The pulse is distinct, but rather weak; the tip of the nose and ears are cold; the rest of the surface is cool, but not cold; there is scarcely any blueness, and the hands are not shrivelled; the eyes are somewhat sunk, but the voice is natural. These cases are subject to many changes. An attempt at reaction frequently appears to be made: the ears become red and warm; but the recurrence of vomiting throws them back into their former state; and at length they are so harassed, that they sink into a greater degree of collapse, the skin becoming cold and clammy; or, after the lapse of two or three days' incessant vomiting, the stomach appears to be exhausted, vomiting ceases, the conjunctiva becomes injected, and the patient falls into a comatose fever. This sort of vomiting is not so unfavourable a symptom as that of serous fluid untinted with bile; I have, however, seen many die of it. The treatment I have found most successful is the exhibition of *magnesia, aq. calcis, pot. caust. aq.*, emollient enemata, (if required), and the application of sinapisms or blisters to the spine or epigastrium. I have often seen saline draughts with laudanum given to check this and other forms of vomiting, and I have tried them myself; but I may now state, once for all, that if this or any other description of vomiting, in this type of the disease, be stopped by opium, the patient's chance of recovery is materially lessened thereby. Saline draughts alone may be given so long as the patient likes them, but I think they possess very little influence over this affection. We must be very cautious in applying leeches before the occurrence of reaction. I have tried dry cupping on the epigastrium a few times: I thought it useful; but it needs a further trial."

The remaining eighty pages of Dr. Cranfield's treatise, are

* *De Curandis Hominum Morbis Epitome*, tom. vii. § 675.

directed to the period of reaction, and the treatment of the spasmodic and febrile types of cholera ; they are replete with interesting matter, for which we must refer to his work, as we have left ourselves scarcely room enough to append a few observations of our own, on some points connected with the treatment of this disease.

We entirely coincide in opinion with Dr. Cranfield, that calomel should be altogether laid aside in the treatment of malignant cholera, but we cannot agree with him in also proscribing opium. During the premonitory diarrhœa, and during the stage Dr. Cranfield calls the first degree of collapse, we always give opium, with a view of assisting in stopping the discharges from the stomach and bowels. *To effect this object we recommend very small doses of this medicine*, for it is well known that its astringent action on the vessels of the alimentary canal is exerted as effectually (or even more so) in small doses as in large.

The excellent effects of opium in minute doses, combined with acetate of lead, in arresting many forms of hæmorrhage, and in stopping common acute and chronic diarrhœa, seem to point out that the combination of these remedies ought not to be laid aside upon light grounds, as they appear, when given together, to act not merely more efficaciously, but more safely, for it has been long ago remarked by our ablest writers, that these medicines mutually control and modify the action of each other.

Acetate of lead naturally suggested itself to the minds of Dupuytren, and many other practitioners, as a means deserving of trial in cholera ; and it has been tried by many, some of whom have testified favourably concerning its action, while others have expressed a contrary opinion ; the results obtained in the Grangegorman Hospital were not known to the medical men of Dublin, for the only publication which spoke of the practice pursued in that establishment, was an excellent paper by Mr. M'Coy, published originally in this Journal, and since republished in the Dublin Evening Post, and, I believe, in other newspapers. Mr. M'Coy does not even mention the acetate of lead, but relies altogether upon the frequent exhibition of very large doses of calomel. No wonder then that no advantage was derived from the previous experience of the good effects of acetate of lead at Grangegorman Hospital, for when the epidemic of 1834 broke out, the practitioners of Dublin, as a body, were unacquainted with the valuable results there obtained ; this we have ascertained, by a reference to the prescriptions on the files of some of the apothecaries in greatest business, and from which it appears, that calomel and opium, with various stimulants, were the

means almost universally resorted to, by the most eminent physicians and surgeons in Dublin. Acetate of lead, in the form of enema, was indeed used by some, but the internal exhibition of the remedy was not thought of.*

About the latter end of July, when the disease was raging most violently among the middling and better ranks of society, and at a time when we had very frequent opportunities of treating it, we had too often to regret the inefficacy of the means employed, although we were aided by the advice of the most eminent members of the profession in Dublin, and too often had we to witness the loss of cases, not apparently very dangerous when they began, and which seemed to leave full time for the successful interference of a judicious mode of treatment.† Under these circumstances we lost an intimate and highly esteemed friend, and from that moment we resolved to lay aside the mercurial treatment which we had hitherto tried with so little success, although it had been pushed to the greatest extent, and with the greatest activity and perseverance. We next tried the following combination :

℞ Acetatis Plumbi ℥i.

Opii pulv. gr. i. m

Fiat secundum artem massa in pil. xii. dividenda.

When called to see a patient affected with the premonitory diarrhœa, it was invariably stopped with the greatest certainty and ease by one of those pills taken every second, third, or fourth hour, according to the urgency of the symptoms. The epidemic of 1834 contributed much to shake the faith of many of our friends, who were non-contagionists ; for the disease, when it once gained entrance into a house, was generally found to spread, and seldom content with one victim, it occasionally carried away five or six. Many, very many of those who attended the sick were attacked, and it was especially observed that several of the persons sent to cleanse infected houses, such as white-washers and charwomen, met their fate while thus employed ; and that several porters, who packed and removed furniture from such houses, were attacked. The frequency with which the disease spread in a family when it had once gained admission, gave abundant opportunities of witnessing the stage of premoni-

* The publication of Dr. Cranfield did not make its appearance until the epidemic was nearly over.

† There are cases of cholera which admit of no treatment, and which an experienced eye will at once recognize as fatal. They generally occur in persons above sixty, and are not usually preceded by premonitory diarrhœa ; such cases too occur occasionally among children.

tory diarrhoea. When the symptoms of actual cholera had commenced the same pills were given, one every half hour, until some diminution of the watery evacuations, both upwards and downwards was observed, after which one was ordered every hour, and the intervals were thus gradually increased until the bowel complaint had ceased altogether. *In this way some have taken more than forty grains of acetate of lead, in less than twenty-four hours.* The reader will at once perceive that here our method differs materially from that recommended by Dr. Cranfield, who says in one of the passages above extracted, that, "*it may be repeated in two-grain doses every hour, until the serous discharge shall be materially diminished, or until from ten to fifteen grains shall have been taken.*"

The astringent effects of acetate of lead taken by the mouth, we have constantly aided by the same salt in the form of enema, with the addition of a few drops of laudanum. Were we to speak of the numerous cases of cholera that yielded to a treatment, of which the exhibition of acetate of lead formed the principal feature, we would be led into a tedious, but not an uninteresting detail. We shall therefore merely refer to some of the most malignant cases, where the recovery of the patient was previously owing to the bold exhibition of this remedy, and where the success of this practice was acknowledged by witnesses the most unexceptionable and competent. Mr. Peile, Deputy Inspector General of Hospitals, and Staff Surgeon Colclough will not readily forget the apparently hopeless case of an Assistant Surgeon in the army, whose life was thus saved. Dr. Marsh was so struck with the recovery of a young gentleman, residing in the house of a clergyman, on Charlemont-mall, and whose case appeared desperate, that he did not hesitate to approve of the exhibition of the same remedy when he met us along with Dr. Stokes, in the case of an eminent surgeon of this city, whose attack was most alarming, and to us all appeared nearly hopeless. Here again an unexpected recovery followed this treatment. Mr. King of Stephen's-green and Mr. M'Namara of York-street, saw a fearful case of the disease in a young gentleman residing in Mr. M'Namara's immediate vicinity, and whose recovery could be scarcely hoped for. Another instance of success, under circumstances equally unpromising, was witnessed at the Richmond Barracks, by Dr. Davis, Surgeon of the 18th, or Royal Irish Regiment of Foot, along with Dr. Marsh and ourselves. Equally successful results have followed this practice in the hands of other practitioners, both in Dublin and in some country towns, where we have communicated it to our friends. That there are many cases where this and every other method will fail, constitutes no valid objection to the

practice; for where is the disease in which cases do not frequently occur, that baffle all our efforts? Fever, scarlatina, measles, pneumonia, croup, inflammation of the brain, of the eye, of the bowels, and many other affections, are often met with possessing an intensity which renders them as intractable and as speedily destructive, as even the worst cases of cholera.— Thus we ourselves have seen about twelve cases of scarlet fever, which, in spite of every effort, proved fatal within twenty-four hours. But does this occasional intensity, and occasional intractability of certain cases, lead us to regard the diseases above enumerated as beyond the reach of medicine and the control of the physician? by no means; for although we feel our efforts in the particular cases specified to be unavailing, we also feel that where the intensity of these diseases is less, we can save numerous lives that would be otherwise lost: so it is likewise with cholera. But we must bring these observations to a close,* and we shall therefore only add, that the convalescence of persons cured by the acetate of lead, is not disturbed by any of those unhappy accidents, which we have witnessed, especially among the poor, when treated by calomel.

R. J. G.

Traité Experimental de l'Electricité et du Magnetisme et de leurs rapports avec les phénomènes naturels. Par M. BECQUEREL, de l'Academie des Sciences de l'Institut de France, etc. Tome premier, 1834, pp. 564, 8vo. Paris, Firmin Didot, Freres.

Experimental Treatise on Electricity and Magnetism, and on their Relations to Natural Phenomena. By M. BECQUEREL, of the Academy of Sciences, of the Institute of France. First vol. 1834.

THE publication of the book, a short account of which we are about to present, must constitute an era, not merely in electricity, but in science considered in its most extensive acceptation. The intention of M. Becquerel is to teach us what is known of the agency of electricity, to exhibit that all-pervading force in-

* An apparatus, contrived by that eminent chemist, Mr. Scanlan, of this city, has proved extremely useful by enabling us to manufacture ice in the chambers of the patients, who were thus supplied with iced water night and day. We always allow cold water when desired; but it must be given in small quantities, half a wine glass-full, for instance, at a time.

fluencing the phenomena of nature to a degree that is only to be estimated by profound investigation. We are probably upon the eve of an immense addition to our knowledge of mundane forces, the various physical agents are connecting themselves daily by new links, which must finally be found constituting parts of one continuous chain. The recent progress of electrical science is, in this respect, the most important of any ; not mere links, but whole pieces of the chain, have been produced ; it has been shown that the difficulty no longer is to develop electricity by mutual action of certain bodies ; but to find an action which does not stand related to electrical excitation either as effect or cause.

To all therefore who wish to know how the physical sciences are now circumstanced, this book of Becquerel's is necessary ; to another, probably not so very numerous, but still important body, it is of considerable value ; those who pursuing that spirit of concatenation, that development of analogies, which in the hands of Faraday, of Becquerel, and many others, has been productive of such excellent results ; to them it is necessary to know all that has been done by their co-operators in countries far distant, and published in languages cultivated much more generally by our neighbours than by ourselves. The history of the progress of electricity, from its origin to the present period, shall save such persons a mass of research through periodicals, the labour of which can only be estimated by those who have actually submitted to it. To the first and to the second class, to all who as amateurs are interested in our knowledge of the causes of natural phenomena, and to all who as experimenters are engaged in the prosecution of physical research, the work is of interest and of importance. Even supposing, that there are some of our medical readers, not included in the former class, (a thing we should be very unwilling to imagine,) it must acquire value in their eyes, from giving an excellent account of the applications, to medicine and physiology, of electricity, as existing in its three remarkable conditions. The effects of the machine, of the battery, and of the recently discovered currents of low tension, over man and other animals, are described in such a manner as to render the perusal of those portions of interest to every practitioner in medicine.

We could not (without devoting a space that our present limits do not at all allow) enter into the discussion of any of the absorbing subjects treated of in this volume ; to give a general idea of its contents, to characterize, by a few imperfectly translated extracts, the method of description of facts and theories adopted by its illustrious author, is all that we can in the present

instance permit ourselves to do ; indeed much more should be unnecessary, for few of that (we hope very numerous) portion of our readers, who could be interested by the necessarily meagre specimen in a review, will fail to have recourse for perfect satisfaction to the work itself.

The first 400 pages of the volume now published are occupied by an excellent historical account of the progress of electrical science, from the earliest ages to our own time. This department is arranged in three periods: the first, from the origin of electricity, as observed by Thales and Pliny in the loadstone, and in amber when rubbed, to the time when the convulsions excited in dissected frogs, by the contact of dissimilar metals, immortalized Volta and Galvani, and gave to chemical science, the machinery of her greatest subsequent improvements. The development of the properties of the pile, its chemical and calorific effects, the theory of the source of its extraordinary quantity of electricity, gave full occupation to physicians during the second period, until the discovery of *Ørsted* of the mutual action of the galvanic current and the magnetic needle, marked the commencement of a third epoch not yet terminated, in which facts have been so accumulated, analogies so remarkable have been traced out, that like the twigs of the Indian tree, the offsets of electrical science have taken root themselves, to become in turn monarchs of the forest, and the parents of new branches of intelligence, whose results can be conceived, as they can only be produced, in time.

The medical reader will derive great satisfaction from the complete history of the medical application of electricity presented to him by Becquerel: omitting those matters more generally known, we shall present a few instances of its utilization, of which we, and perhaps some of our readers, were not before aware.

M. Marianini has indicated a means of applying galvanic electricity to the cure of some cases of paralysis and of paraplegia. He says that a current should be passed across the affected limb, during many days, or even weeks; not a continuous current, but very rapidly successive discharges of a battery at first weak, but gradually augmented. He states that by this method he obtained many cures.

Dr. Fabr -Palaprat also has obtained successful results from the process of Marianini. By means of the balance spring of a time-piece, skilfully put in connexion with the wires of a galvanic battery, he gives shocks more or less rapid to the person submitted to its action. From a great number of observations, he has recognized marked effects in cases where there was atony or debility in the functions of organs, without any

lesion of tissue or inflammation; in lymphatic engorgements, for instance. He has also used the calorific effects of the pile to produce internal moxas. He introduces into the part he wishes to disorganize, a platina needle in communication with one pole of a very strong battery, while the other pole communicates with the body. If the current be sufficiently intense, it heats to whiteness the platina wire which burns the organized parts in contact with it. At the end of a few days, an eschar, in the form of a tube, is produced, and may be easily withdrawn. It is evident that this plan should be very cautiously employed.

M. Orioli, one of the most distinguished philosophers in Italy, has published some theoretical considerations on a new method of modifying the laws of life, by changing the electrical condition of the living parts. After having remarked, that it is now proved in inorganic chemistry, that the influence of electrical conditions produces changes in the chemical properties of bodies; he says, that this effect should equally be produced in organic chemistry, and that if the living do not present the same play of affinities as dead substances, this difference should arise from the existence in the former of a peculiar electrical state, differing from that which generally exists in bodies destitute of life. At present (says he) most physiologists believe that life may be considered as the result of an action of piles skilfully combined and perpetually in action, so that every organ is an electrical machine, and that all these batteries have such a reciprocal and common relation, that the instant that life ceases, the electrical actions no longer have the faculty of being produced.

In accordance with this principle, such piles put in action by an unknown cause, connected with vitality, should necessarily produce a positive or negative polarity in parts where it would not have taken place, independent of voltaic action. There should result, where those poles are situate, secretions, excretions, and peculiar modifications, which cease from the instant that the electrical action is destroyed.

As we can annihilate the action of sea water on copper, by rendering that metal electro-negative, so we can change the nature of secretions in animals, by reversing the polarity of the organs which furnish them. The stomach, for example, secretes acids, it is then naturally positive. If this secretion be too abundant, we must develop more powerfully an opposite electrical condition. Similarly when the kidneys secrete too much uric acid, and produce calculi, they must be rendered negative.

M. Orioli advises, that before seeking to apply electricity to therapeutics, the nature of the secretions produced should be

studied in order to develope in the secreting organ an electrical state, proper to determine contrary effects. These secretions are acid, or alkaline, or neuter ; if they are acid or alkaline there is no difficulty : if they are neuter, there should be applied to the diseased part, the pole of a name contrary to that characterizing the part in its normal condition.

For this purpose he proposes to apply suitably to two parts of the body deprived of epidermis, two disks, one of zinc, and another of silver, communicating together by a wire of metal, and to maintain them in their places for days, weeks, or even months, only cleansing them occasionally. We shall not enter further into the details of this method, which must vary with the nature of the individual case, as our object is only to illustrate his principles. According to that distinguished philosopher, we may employ this method in the interior of the bladder, by introducing a sound, the extremity alone of which should be of a conducting material, and the remainder covered with an insulating varnish. This sound communicates with one pole of a voltaic apparatus, while the other is put in connexion with the loins. He states, that we can succeed in that way in attacking calculi and decomposing them more simply, than with any other apparatus. If the observation of Mansford be true, that the wound in connexion with the negative pole tends always to cicatrization, it would be no doubt possible to apply this fact to the cure of certain inveterate wounds and ulcers, by putting them in communication with that pole.

The chemical agencies of electricity are of a nature so remarkable, and have consequently attracted so much popular attention, that there is not so much actually novel in their extraordinary phenomena, as in many infinitely less important and less beautiful ; in addition, we have taken care, in the successive numbers of this Journal, to present such sketches of the researches of M. Becquerel himself on the effect of very feeble currents, in producing chemical combination and decomposition, that, to the readers of the Dublin Journal, his labours we trust should not be altogether new ; we shall, therefore, limit ourselves to a few instances of the application of electrical agency to the detection of the poisonous vegetable principles, a subject of paramount interest to those engaged in medico-legal research.

MM. Pelletier and Couerbe presented to the Academy of Sciences, 13th January, 1834, a memoir containing a new analysis of the *cocculus Indicus*. They announced that they employed successfully the pile to obtain one of its immediate principles (picrotoxine) crystallized. Having recognized, after many trials, that this principle in combining with alkalies acted as an acid, they submitted to the action of the pile a solution

of picrotoxine in water slightly alkalized by potash. After half an hour's action, picrotoxine had deposited itself on the positive pole, under the form of finely crystallized needles. The negative part of the apparatus contained only a solution of potash destitute of bitterness.

They have also resolved another question, by electrical agency. If picrotoxine acts as an acid towards very strong bases, should we conclude, that it would behave similarly towards the alkaloids of organic origin? They submitted to the action of the pile picrotoxate of brucine. This body was rapidly decomposed. The picrotoxine formed beautiful radiated crystals at the positive pole, and the brucine was equally deposited, but in granular crystals, on the negative wire. They remarked, that the red colour which brucine takes by contact with nitric acid is equally developed around the positive pole. This reaction may serve to distinguish brucine from morphia, which is reddened by nitric acid, but not by the pile.

The combination of picrotoxine with the vegetable alkalies, as strychnine, quinine, cinchonine, morphine, narcotine, &c. acted in an exactly similar manner.

This result is one of great utility. Its authors made an exceedingly important application of it to organic chemistry. In general it is believed, that the organic alkalies existed quite formed in vegetables, but united to acids, and that to isolate them it is necessary to abstract this latter by a stronger base. Some persons, however, have supported the opinion, that the vegetable alkalies do not exist ready formed. To decide this alternative, a solution of opium was submitted to the action of the pile. Almost immediately numerous flocculi deposited themselves in granular masses at the negative pole, whilst that a few light flocculi were separated on the positive pole. The matter deposited at the negative wire having been dissolved in alcohol, and the liquor evaporated, gave brilliant crystals of morphia. The other substance presented all the character of meconic acid. We may hence conclude, that morphia pre-exists in opium, and that it can be obtained without using any alkaline material.

Having concluded the history of electricity and magnetism, M. Becquerel proceeds to an exposé of the phenomena which have relations more or less intimate with electricity. Under this head he treats of phosphorescence, of terrestrial heat, of geological formations, of veins, &c.; of the alterations of rocks, and generally of the forces by which these alterations may be conceived to have been effected.

We must, however unwillingly, postpone the consideration of that department, until the appearance of the second volume shall give us an opportunity of recurring to a subject of itself so

worthy of the attention of all interested in the advancement of science, and rendered doubly attractive by the admirable manner in which it has been handled by the justly celebrated author.

ROBERT J. KANE.

The Dublin Practice of Midwifery. By HENRY MAUNSELL,
M. D., M. R. C. S. I.

Books of science are of two kinds, either original or compiled ; the first entering into all the minutiae of the subjects on which they treat, and where this is an extensive one, forming a large and weighty treatise. But a volume of this magnitude, how valuable soever to those versed in the science, is, from its size and depth, comparatively useless to a student just entering upon his work, and whose attention is divided between several branches of equal importance to him. To remedy this, smaller books, containing condensed statements of the information afforded by the larger, yet wanting their minuteness of detail and length of description, have been found highly useful. We have manuals of various merit in all the departments of medicine and surgery, and we are now happy to introduce to our readers, a Dublin Manual of the Practice of Midwifery, and we have no doubt but that it will prove a valuable aid to students occupied in such pursuits, as there is no branch which requires a man to have his information packed into a smaller compass, and which makes so sudden and imperious a demand for all his available knowledge. As this little work assumes no higher ground than that of a student's manual, it would be unjust to expect more from it, than that it should contain a clear and accurate statement of the principles and practice generally adopted by the profession, with a proper license for the author's private opinion and practice. And certainly to this credit, Dr. M. is amply entitled. He has given us a book which may be put into the hands of pupils, and in which they will find most of the advantages and few of the defects of former manuals, together with many of the more modern improvements. The style is plain and condensed, neither obscure nor overburthened with ornament, and above all, he has had the good sense to avoid the use of the fearfully learned words now so much prized. With so much to praise we doubt not that there are some things with which fault may be found ; but as our "forte" does not lie this way, we propose rather in the short space allotted to us, to point out some of its excellencies. The first chapters are devoted to the consideration of the machinery and mechanism of parturition, the relative

size of the pelvis and child, and the mode of transmission. This latter subject is a condensation of the views of Naegelè, and will be perused with pleasure and profit by every student. The author then proceeds to the generative system and its functions, the changes and contents of the gravid uterus, signs of pregnancy, the different species of labour, and the management of puerperal women, and some of the diseases to which they are liable.

Having said so much of the general scope of the work, we shall lay before our readers a few extracts from different parts. In the chapter on mechanism of parturition, Dr. M. thus describes the process when the head presents:—

“ In the *first position*, then, the head enters the brim of the pelvis, with its posterior fontanelle directed toward either acetabulum, (generally to the left), and the forehead toward either sacro-iliac synchondrosis (generally the right). The presenting part, or that which we may touch most readily, upon introducing a finger into the outlet of the pelvis, is the superior portion of one of the parietal bones near its tuber; consequently the head descends obliquely into the pelvis, neither the vertex nor the sagittal suture being the lowest part, but one of the parietal bones; the right, when the posterior fontanelle is directed towards the left acetabulum, and the left when it lies towards the opposite side. By this oblique position of the head, its transverse diameter is rendered somewhat less than that which would be described by a line passing between the two parietal tuberosities, which if the vertex were the lowest or presenting part, would be the moving transverse diameter. During this stage of the process, the chin of the fœtus is depressed upon its chest, so as to bring the shortest of the long diameters of the head, or that between the lower part of the occiput and upper part of the forehead, into the direction of the oblique or largest diameter of the mother's pelvis. At this time the greater fontanelle or the vertex is lower than the lesser, and being situated anteriorly, can, from the shallowness of that portion of the pelvis, be felt very near the external opening. As the head descends, the face turns somewhat into the hollow of the sacrum, and the vertex approaches the symphysis pubis. It is, however, the parietal bone which first escapes, and the vertex does not reach the anterior central line, until in the very act of being expelled from the outlet. The mechanism by which this *turning* is accomplished is extremely interesting. The hollow of the sacrum is provided for the bulky face of the child, while the convergence of the point of the sacrum and spines of the ischia, and the bevelling of the inner surface of the rami pubis form so many inclined planes, upon which the round, smooth cranium is guided forward under the pubic arch. The change effected at the expulsion of the head brings, at the same instant, the long diameter of the shoulders obliquely into the brim of the pelvis, thus taking advantage of the wise adaptation (already alluded to) by which the long diameters of the brim and outlet are

placed at right angles with each other. The head, soon after its expulsion, is again turned with the face toward one thigh of the mother, and thereby the greatest breadth of the shoulder from side to side, is brought into the direction of the long diameter of the outlet from before backwards; the rest of the body and limbs follow without difficulty."

We do not agree with Dr. Maunsell when he speaks of "the decidua reflexa being attached to the foetal surface of the placenta, interposed between it and the chorion." We have repeatedly examined placenta, both fresh and in various stages of decomposition, without being able to find a trace of it.

Under the head of natural labour, (by far the most important to the student), we find many judicious observations, and some valuable directions for the fulfilment of the duties of the accoucheur. Take a specimen, touching the management of the mother in the last stage of labor. To insure a full and permanent contraction of the uterus, the author says,

"As soon as the perineum is safe, the left hand should be placed upon the patient's abdomen, under her clothes, and the uterus followed down into the pelvis, as it contracts upon and expels the body and limbs of the fetus. In some cases, where the uterine action is slow, slight friction on the abdomen will at once bring on a pain, which otherwise might not return for several minutes. Next to insuring a *perfect* contraction of the uterine fibres, it is of the greatest importance to maintain them *permanently* in that condition; and this we shall best effect by keeping up gentle pressure, and allowing no interval for relaxation. In order to answer this intention, as soon as it becomes necessary for us to attend to the child, we should cause the nurse to pass her hand over our own, in such a manner as that, when ours is withdrawn from the abdomen, she may be enabled to grasp the uterus, and keep up as effective a pressure as we have been employing. Upon no account should this pressure be discontinued, until an equal support is given by the adjustment of the *binder*, in the way afterwards to be considered."

Perhaps there is no medicine which interests accoucheurs more at present, than the ergot of rye. From the numerous reports of successful cases, unaccompanied with a minute observance of the rapid and important changes in the succession of symptoms, there is no slight danger of its being used wherever the impatience of the medical attendant (especially if young) may desire the termination of a tedious attendance. On this account the following statement of the circumstances in which this drug may and may not be used, is worthy of notice :

"It never should be given until the os uteri is completely dilated, nor when there is malformation of the pelvis, or rigidity of the soft parts. If used when the os uteri is undilated its effect

would be similar to, and equally injurious with, the too early rupture of the membranes : under the latter circumstances, it might cause laceration of the uterus, or of the soft parts. It never should be given when there is any preternatural presentation that may require to be rectified, nor in convulsions, nor when there is any tendency to head symptoms. In the first case by increasing the uterine action, it would of course increase the difficulties ; and in the two last, it would be manifestly unsafe, for reasons presently to be mentioned. On the other hand, if the passages be well prepared and dilated, the os uteri fully open, and the head low down in the pelvis, with plenty of room ; in fact, nothing but want of pains preventing its expulsion, we may safely use the *ergot*."

From the extracts we have given, a very fair idea of the practical value of Dr. Maunsell's work may be formed, and our space forbids our availing ourselves of the many others which abound. One paragraph more we feel it a duty to notice, because a different view has been taken of the subject by a contemporary, who expresses surprise at Dr. Maunsell's recommendation not to apply the binder until after the birth of the child. Dr. M. expressly states that some gentlemen recommend the binder to be put on before delivery ; but that he prefers the other plan, and for a plain and, we think, valid reason, viz : that in case there be any flooding, it is much more effectually controlled by grasping the uterus with the hand, which would be impeded in its access to the abdomen by the previous employment of the binder. We strongly recommend this little book to all students who are commencing this branch of their profession ; it will form a valuable introduction to the more weighty and important volumes of Denman and Burns ; and we do not think that Dr. M. has expended superfluous labour in adding an Irish manual to those of other countries, already in the hands of the public.

SCIENTIFIC INTELLIGENCE.

CHEMICAL AND PHYSICAL SCIENCE.

On the Relation of the Density of Gases to their Atomic Weights, by E. Mitscherlich.—The experiments which Humboldt and Gay Lussac have given to us, on the proportion of oxygen and azote which enter into atmospherical air, and to which nothing has been added since their writings, have led to this important result, that air, from whatever region it may proceed, contains oxygen and azote in a relation always the same; and that oxygen unites with hydrogen in the proportion of two volumes of the latter to one of the former to form water. By means of this latter result, it has become possible not only to determine by weight (more exactly than formerly) the composition of water, which had a great influence on the composition of many other chemical compounds, but also Gay Lussac has found a simple relation of the volumes in the combinations which oxygen, azote, hydrogen, and chlorine form. The following is the ratio:—

1 vol. with 1 vol.		
2	—	1
2	—	3
1	—	3
2	—	5
2	—	7

The last is met with but once.

From these researches arises the following:—What relation is there between the space which the combined volumes occupy, and that which their two elements occupied? It is found that

1 vol. with 1 vol. gives 2 vol.				
1	—	2	—	2
1	—	3	—	2

Formerly we were not able to determine the density of compounds in which two volumes unite with three, five, or seven volumes, yet numerous researches on such combinations might be of an importance, the greater that, by the discovery of a general law, it was possible to deduce from the density of complicated combinations that of their elements: for instance, by the results already recorded, we find the density of carbon by that of carbonic acid and oxide of carbon, that of fluorine by the density of hydrofluoric acid.

By comparing the law of definite proportions, as established by Berzelius, with others admitted since that time, and by applying to them the atomic theory of Dalton, it appeared likely that every simple gas contained under the same volume an equal number of atoms. This applies to simple gases only, since the deutoxide of azote contains in the same volume only half the number of atoms contained by the simple gases of which it is composed.

The labours of M. Dumas, on the density of the vapour of sulphur, have demonstrated that simple gases, as well as compound, do not contain in the same volume the same number of atoms, but that sulphur in a state of gas contains three times the number of atoms that an equal volume of oxygen does.

But it is shewn by all the experiments hitherto made, that in an equal volume the number of atoms in all the gases follow a simple ratio.

I have given the ratios in the second column of figures, and I shall explain presently the motives I had in adopting them. It is from them that I have calculated the densities brought into the last column of the following table.

Simple gaseous bodies whose density has been determined.

	By Experiment.	No. of Atoms.	By Calculation.
Oxygen	= 1.10260	B D* 1	„
Hydrogen	= 0.06880	B D 1	„
Azote	= 0.97600	B D 1	„
Chlorine	= 2.4700	G T 1	2.44033
Bromine	= 5.5400	M 1	5.393
Iodine	= 8.71600	D 1	8.70111
Sulphur	= 6.51—6.617	D 3	6.65415
	= 6.9	M „	„
Phosphorus	= 4.420	D 2	4.32562
	= 4.58	M „	„
Arsenic	= 10.6	M 2	10.36536
Mercury	= 6.976	D $\frac{1}{2}$	6.97848
	= 7.03	M „	„

The following are the densities of the several combinations of these bodies one with the other.

	By Experiment.	No of Atoms.	By Calculation.
Water	0.6235	G $\frac{1}{2}$	0.62010
Protoxide of Nitrog.	1.5204	Co $\frac{1}{2}$	1.52730
Deutox of do.	1.0388	Bé $\frac{1}{2}$	1.03930
Nitrous acid	1.72	M $\frac{1}{2}$	1.59060
Ammonia	0.5967	B A $\frac{1}{2}$	0.59120

* B D signifies Berzelius and Dulong; B, Berzelius; Be, Berard; B A, Biot and Arago; G, Gay Lussac; G T, Gay Lussac and Thenard; C, Colin; R, Rose; D, Dumas; M, Mitscherlich.

	By Experiment.	No. of atoms.	By Calculation.
Hydrochloric acid . . .	1.2474	BA	$\frac{1}{2}$ 1.2544
Hydrobromic do. . . .	2.73107		$\frac{1}{2}$ 2.73107
Hydriodic do.	4.44	G	$\frac{1}{2}$ 4.38495
Sulphurous do.	2.247	B	$\frac{1}{2}$ 2.21162
Anhydrous sulphuric do.	3.0	M	$\frac{1}{2}$ 2.76292
Hydro-sulphuric do. . .	1.912	G T	$\frac{1}{2}$ 1.17782
Chloruret of Sulphur . .	4.70	D	$\frac{1}{2}$ 4.658
Phosphuretted Hydrogen	1.1214	D	$\frac{1}{2}$ 1.1896
	1.100—1.191	R	
Chloruret of Phosphorus			
liquid	4.8765	D	$\frac{1}{2}$ 5.7414
Do. do. solid	4.85	M	$\frac{1}{2}$ 4.79
Arsenious Acid	13.85	M	$\frac{1}{2}$ 13.3
Arseniuretted Hydrogen	2.695	D	$\frac{1}{2}$ 2.69454
Chloruret of Arsenic . .	6.3006	D	$\frac{1}{2}$ 6.25183
Ioduret of do.	16.1	M	$\frac{1}{2}$ 15.64
Chloruret of Mercury . .	8.35	M	$\frac{1}{2}$ 8.20
(D M Calomel)			
Chloride of Mercury . .	9.8	M	$\frac{1}{2}$ 9.42
(Sublimate)			
Bromuret of Mercury . .	10.14	M	$\frac{1}{2}$ 9.675
Bromide of do.	12.16	M	$\frac{1}{2}$ 12.373
Iodide of do.	15.6—16.2	M	$\frac{1}{2}$ 15.68
Sulphuret of do.	5.51	M	$\frac{1}{3}$ 5.32
(Cinnabar)			

Besides the density of these combinations, the density of others has been determined, viz., those formed of compounds whose density is known: amongst those are cyanogen. I do not speak of the combinations of ether and bicarbonated hydrogen, because there is a difference of opinion on the manner in which their formation is to be understood.

	Experiment.	Calculation.
Cyanogen	1.8064—G	. . . 1.81879
Hydrocyanic Acid	0.9476—G	. . . 0.94379

From the density of these substances it results, that they combine in volumes as follows:

1 of Azote* with	1 of Oxygen, which give	2 vol. of Deutox. of Azote.
1 of Chlorine—	1 of Hydrogen, ———	2 Hydrochloric Acid.
1 of Bromine—	1 of Hydrogen, ———	2 Hydrobromic Acid.
1 of Iodine —	1 of Hydrogen, ———	2 Hydriodic Acid.
1 of Cyanogen	1 of Hydrogen, ———	2 Hydrocyanic Acid.
1 of Cyanogen	1 of Chlorine, ———	2 Chloruret of Cyanogen.
1 of Mercury —	1 of Chlorine, ———	1 Chloride of Mercury.
1 of Mercury —	1 of Bromine, ———	1 Bromide of Mercury.
1 of Mercury —	1 of Iodine, ———	1 Iodide of Mercury.

2 of Hydrogen with 1 of Oxygen,	which give	2 Vapour of Water.
2 of Azote — 1 of Oxygen,	—	2 Protoxide of Azote.
2 of Mercury — 1 of Chlorine,	—	2 Chloruret of Mercury.
2 of Mercury — 1 of Bromine,	—	2 Bromuret of Mercury.
2 of Oxygen — 1 of Azote,	—	2 Hyponitric Acid.
1 of Azote — 3 of Hydrogen,	—	2 Ammonia.
1 of Arsenic — 3 of Oxygen,	—	1 Arsenious Acid.
1 of Sulphur — 3 of Chlorine,	—	1 Chloruret of Sulphur.
1 of Sulphur — 6 of Oxygen,	—	6 Sulphurous Acid.
1 of Sulphur — 6 of Hydrogen,	—	6 Hydrosulphuric Acid.
1 of Phosphorus 6 of Hydrogen,	—	4 Phosphurett. Hydrogen.
1 of Arsenic — 6 of Hydrogen,	—	4 Arseniuretted Hydrog.
1 of Phosphorus 6 of Chlorine,	—	4 Chloruret of Phosphor.
1 of Arsenic — 6 of Chlorine,	—	4 Chloruret of Arsenic.
1 of Arsenic — 6 of Iodine,	—	4 Ioduret of Arsenic.
1 of Sulphur — 6 of Mercury,	—	9 Sulphuret of Mercury.
1 of Sulphur — 9 of Oxygen,	—	6 Sulphuric Acid.
1 of Phosphorus 10 of Chlorine,	—	6 Chloride of Phosphorus.

It results from the proportion in which sulphur unites with other substances, from the form of its crystallization in its combinations, and from its capacity for heat, that the number of atoms in oxygen, chlorine, &c. is to that of the atoms of the sulphur as 1 to 3, and that this ratio is as 1 to 2 in sulphurous, sulphuric, and hydrosulphuric acids, and in chloruret of sulphur.

On the contrary, if we admit in equal volumes of simple gases, the same number of atoms, that number in oxygen, chlorine, &c. would be to that of sulphurous, sulphuric, and hydrosulphuric acids, and chloruret of sulphur, as 1 to 6, and in sulphuret of mercury as 1 to 9. As these relations are not met with in other compounds, and as they are too complicated to have the least resemblance, the conclusions we may draw from the density of the combinations of sulphur, on the number of atoms of that simple body, agrees perfectly with those drawn from the relations which take place between the combinations of sulphur, their form of crystallization, and their capacity for heat. Neither the ratio of combination of phosphorus and of arsenic, nor the properties nor form of these combinations, could inform us if the phosphorus contains as many, or double as many atoms as oxygen, chlorine, &c. under the same volume; it is only the capacity which would lead us to infer that the number is double. If this be admitted, then the number of atoms of oxygen, &c. is to that of phosphuretted and arseniuretted hydrogen, and of the ioduret of arsenic, as 2 is to 1—consequently the same as in ammonia; it is also to that of arsenious acid as 1 is to 1, and to that of chloride of phosphorus as 3 is to 1. If we consider the number of atoms equal, and not double, the first ratio is as 4 to 1, the second as 2 to 1, the third as 6 to 1. These relations are not, it is true, as simple as the former, but they are not compounded enough to admit of the double number.

As selenious and sulphurous acids contain equal atoms, and enter

into combinations differing from each, it was not uninteresting to examine if there were any difference in the density of the two gaseous acids. That of selenious acid was found to be 4.0, whence it results, that a volume of selenious acid contains one volume of oxygen, as does sulphurous acid: from this datum the density calculated is 3.85.

It is to be remarked, that in all metals whose relative number of atoms is known with certainty, there is never found any metallic oxide in which four atoms of metal are combined with one atom of oxygen, and the metallic oxides which contain an atom of oxygen to two of metal, possess already the properties of sub-oxides. It is likely that this ratio is to be found in the protoxide of mercury, and that the latter being formed of four volumes of oxygen, and of one volume of vapour of mercury, this vapour contains at an equal volume only half the atoms of the oxygenous gas, and is in fact what announces the capacity of these bodies for heat.

Another question not less important is, to know if we can deduce the number of atoms from the density of the several chemical compounds? The compounds of tin and titanium with chlorine; those of antimony with chlorine, silicium and boron with chlorine, and of silicium with boron, allow similar observations.

The density of chloride of tin in a state of gas is equal, according to Dumas, to 9.1997, (by calculation 8.934), that of chloruret of titanium, 6.836, (and 6.555 by calculation),* there results from the composition of these two products, that there are two volumes of chlorine in one volume of each of these gases. If one atom of titanium or tin is combined with two atoms of chlorine, the ratio of the number of atoms of oxygen, to the number of atoms of these combinations is as 1 to 1; if an atom of titanium or tin is combined with four atoms of chlorine, the ratio is 2 to 1. The form of crystallization, and amongst others that of titaniuretted iron, gives a preference to the second ratio; and besides, the two relations are so simple, that one can exist as well as the other; in like manner one can decide nothing by the density of the chloruret of titanium, and the chloruret of tin.

The density of the chloruret of antimony has been found to be equal to 7.8. There results from the composition of this product, that one volume contains one and a half volume of chlorine; that is, as much chlorine as one volume of chloruret of phosphorus and of chloruret of arsenic. Its density presents then between phosphorus arsenic and antimony, the analogy recognized in their other combinations.

From the experiments of Dumas, the density of the chloruret of boron is equal to 3.942; that of fluoruret of boron equal to 2.312; there results from their composition, that one volume of chloruret of boron contains one and a half volume of chlorine, and if fluorine and chlorine have the same number of atoms, one volume of fluoruret of

* Calcul. = his table.

boron contains one and a half volume of fluorine, and the same quantity of boron as the chloruret. Hence boron should be placed with phosphorus, arsenic and oxide of antimony; this points out in a particular manner the great resemblance that arsenious acid, oxide of antimony, and boric acid, offer us in their combinations; for instance, with the tartaric and paratartaric acids, (Weinsauren). M. Dumas has found, that the density of the chloruret of silicium was equal to 3.600, hence one volume of this compound should contain two volumes of chlorine. If one atom of silicium is here combined with six atoms of chlorine, the ratio of the number of atoms of the oxygen to that of its combinations is 3 to 1, if there be four atoms of chlorine, the ratio will be as 2 to 1. There is every likelihood from the proportion in which silicic acid combines with other substances, that it contains three atoms of oxygen, and that the combination of chlorine with silicium which corresponds to them, contains six atoms of chlorine. In these relations which we have just explained, and which are all as simple one as the other, density can decide nothing.—*Annales de Chimie et de Physique*, January, 1834.

Preparation of Osmium and Iridium, by M. Perzoz.—The method of separating these metals depends, 1st, upon the action of crude platina upon mixtures of carbonate of potash or soda with sulphur, which produce sulphurets of iron, osmium, and iridium, and a silicate of these bases, and which collect in the form of scorïæ on the surface of the mass in fusion; 2ndly, upon the action of oxygen at a high temperature on the sulphuret of osmium, and from which results a blue volatile compound, described by Berzelius.

The process of sulphuration for acting upon metals has already been employed with so much success, by MM. Berthier and Wohler, that I had every reason to hope it might be applied to the extraction of osmium and iridium, the alloy of which is one of the most refractory known.

A perfect mixture is to be made of one part of the ore of platina, after the action of aqua regia, two parts of carbonate of soda, and three parts of sulphur: this mixture is to be gradually projected into an earthen crucible previously made red hot, and when the whole has been put in, the crucible is to be covered, and kept white hot for a few minutes. When cold, the bottom of the crucible will be found to contain a button formed of small crystals having the appearance of pyrites; these are the sulphurets of all the metals which the ore contained, and some of them are combined with sulphuret of sodium. This button is covered with a layer of pure sulphuret of sodium, the middle of which contains a small quantity of the crystals of sulphuret of osmium; lastly, the surface of the fused mass is the crust of silicate of a light brown colour.

The scorïæ being separated from the fused mass of sulphurets, it is to be put into water; this dissolves the alkaline sulphuret, the double sulphuret of platina, if any should exist in it, and the sulphuret of sodium combined with the sulphuret of osmium and iridium; there remain suspended in the liquid, the sulphurets of iron, osmium, and

iridium, which are to be suffered to subside; by repeatedly washing and subsiding, all the metallic sulphurets are separated from the fragments of crucibles and scorïæ.

The separated sulphurets are to be treated with hot dilute muriatic acid, which dissolves the iron with the evolution of sulphuretted hydrogen gas. As soon as the action is over, the whole is to be thrown on a filter, which retains the sulphurets of osmium and iridium: these when thoroughly washed have the appearance of plumbago. In order to separate the osmium from the iridium, a mixture is made of one part of these sulphurets and three parts of sulphate of mercury: this is to be put into an earthen retort, with a tube adapted for the disengagement of gas. The retort is to be placed in a common furnace, and gradually to be made intensely hot. As soon as the retort becomes nearly red hot, a great quantity of sulphurous acid is evolved, and the heat increasing, vapours arise, which condense on the sides of the adopter into a dense indigo coloured liquid. When the evolution of gas has ceased, the apparatus is allowed to cool, and oxide of iridium is found in the retort. To reduce it to the metallic state, it is to be heated in a porcelain tube and hydrogen gas passed over it: when cooled in this gas, the metal is obtained, resembling spongy platina in appearance. It readily inflames hydrogen gas.

Sometimes the iridium is not quite free from osmium; in this case it is to be fused with potash in a silver crucible; osmiate of potash is formed, which dissolves in water, and a little iridium is also taken up. The whole is to be filtered: the oxide of iridium remaining on the paper is to be well washed, and then dissolved in muriatic acid. To this solution, when concentrated, muriate of ammonia is to be added, this occasions the precipitation of a double black chloride, which after washing and calcining yields pure iridium. Much osmium is found in the neck and adopter of the retort, but in the former it is in the state of oxide combined with mercury, while the latter contains the blue substance already mentioned, and consisting of osmium, oxygen, and sulphur.

To separate the osmium from the mercury, it is sufficient to introduce it into a glass tube, slightly inclined, through which a current of hydrogen is passed, while the tube is slightly heated, the mercury is volatilized, and the pure osmium remains.

The osmium of the blue compound may be separated by zinc, or still better by treating it merely with water, which converts it into another compound of a brown colour and insoluble in water. When washed and dried it may be reduced by hydrogen in the manner above mentioned: in this operation water and sulphuretted hydrogen are produced.—*Ann. de Chim. et de Phys.*, tom. lv. p. 210; and *Phil. Mag.*, October, 1834.

Caution to Experimenters with the Electrical Kite, by Mr. Sturgeon.—On Friday last, about half-past two in the afternoon, clouds began to form in various quarters of the heavens in rapid succession, from mere specks or streaks to immense groups, with every appearance of being highly electrical.

I repaired to the Artillery Barrack grounds with an electric kite, and in a very short time got it afloat, letting out string through the hands from a coil or clue which was thrown on the ground. When about a hundred yards of the string had been let out, a tremendous discharge took place, which gave me such a blow in the chest and legs that I became completely stunned, let go the string, and consequently the kite soon fell.

The accident was owing entirely to my own neglect, and could not possibly have happened had I taken the following precaution.

Let all the string intended to be employed be first taken off the reel or coil, and stretched on the ground. Let now the insulating cord, riband, glass, or whatever is used for this purpose, be attached to the kite-string and fastened to a peg, tree, or anything intended to hold the kite during the time it is up. Next fasten the kite to the other end of the string, and let it ascend from the hand.

This is the manner in which I usually proceed when heavy clouds are hovering about, and ought always to be attended to, although I neglected it on this occasion. The experimenter by this means is completely out of danger; and he may easily ascertain if the string be highly charged by going to the other end, because of the brushes of light, and noise attending them.

I find it convenient to have a sliding copper wire on the silken cord, which can be moved, by means of a long glass rod, to any required distance from the wired string, the other end being stuck fast in the ground. If the electric fire strikes two inches over the dry silken cord, (and it will sometimes strike a yard,) it would not be safe to approach it; and no man could hold the string when it strikes over one inch of the silk, or, which is the same thing, through the air.

After the electrical state of the string has been ascertained, the wire may be slid away from it as far as possible (the silk ought never to be less than two yards long). The other end is then to be taken out of the ground and attached to the apparatus for experiment. The wire is again slid up to the wired string, and left there during the time the experiments are carrying on.

The only method of getting the kite down during an intense electrization of the string, with safety to the experimenter, is to unfasten the silken cord from its hold and let all go: the kite falls. I have frequently been annoyed, whilst holding the kite-string during hot hazy days when no cloud was visible, by a rapid succession of discharges, from which I had no other means of escape than by quitting the string and letting the kite fall. The same thing sometimes happens in cold dense fogs in the winter. I have experienced these rattling or tremulous shocks when the kite has not been more than thirty yards from the ground, and the wired string at the same time touching it. Hence great quantities of the fluid must necessarily pass into the ground directly through the wire, in addition to that which produced the shocks.

The publication of these particulars may possibly prevent some

inexperienced electrician from receiving a death-blow from this kite-string.

Young persons who are fond of kite-flying should also be cautious not to have their kites up during thunder storms, as it is possible that a wet string may transmit a violent discharge, from which a serious accident might occur.—*Ibid.*

Purification of Carbonate of Soda, by M. Gay Lussac.—This salt is commonly purified by repeated crystallization, but it retains so large a quantity of interposed mother liquor that many operations are required to entirely free it from other substances, and after all but a small quantity is obtained. The following process having appeared to me extremely advantageous, I think it may be useful to make it known.

This process is analogous to that which is followed in France for purifying nitre. It is as follows:—Take the crystals of carbonate of soda, such as are met with in shops; having washed them, make a saturated hot solution; when this is set to cool, stir constantly with a rod or spatula to disturb the crystallization and to obtain small crystals resembling sand: the cooling may be accelerated by placing the vessel containing the saline solution in cold water. It sometimes happens that when very much cooled the solution does not crystallize, and that it suddenly becomes solidified. This is the moment to stir very rapidly, to prevent the conglomeration of the crystals. This delay in the crystallization may be prevented by throwing a few crystals into the solution at the moment when it begins to be super-saturated.

Having obtained the crystals, put them into a funnel, in the neck of which place a little tow or cotton to retain them. At first let them drain, then wash them with small quantities of distilled water, waiting till the preceding washing has run through. Test from time to time the washings with nitrate of silver, the washing being previously saturated with pure nitric acid: the purification of the salt is complete when the liquid remains transparent. By this process, and in the first operation, the greater part of the carbonate of soda employed may be obtained in a perfectly pure state. The mother liquor and the washing may be evaporated and treated in the same manner. The same mode of purifying may be used with advantage for many other salts. Its efficacy is founded upon the extreme facility with which water runs through and well washes sandy crystals, such as are obtained by disturbing the crystallization.—*Ibid.*

NATURAL HISTORY.

On Mushrooms, by M. Dutrochet.—The physiology of mushrooms is one of the most obscure points of vegetable physiology. The most of them are distinguished from green vegetables, by the

extreme rapidity of their development, and their brief existence—a phenomenon which no longer surprises us, when we consider that they are the organs of fructification of a filamentous and ramified plant, usually concealed under the earth, or in the interstices of rotten vegetable matter. Vaillant was the first to describe a filamentous mushroom, named by him *corallo fungus argenteus amenti formis*. This production grows on the staves of old barrels, or on damp walls: it presents white branches proceeding from a common centre, which diverging in all directions form by their anastomoses a reticulated body like to the fibrous arrangement of a leaf. Vaillant describes this as appearing at first like a mouldy ball, the size of a chestnut; there proceed very soon from this ball rays of fibres crossing each other, and ramifying to the distance of one or two feet from the centre, and glued as it were to the wood which bears them. The longest generally terminate in a new ball similar to a flake of snow, from which issue bodies of a very different structure, and resembling a honeycomb in their arrangement. These he looks upon as the ovaries of the plant, but he has not discovered any dust that might be taken for the plant itself. Nearly a century after Palisot de Beauvais made a similar observation, and relating evidently to the same plant: the plate he has given of the parts compared to honey-comb, are analogous to those of the boletus, but he has not seen the boletus whose presence seemed indicated by the bundles of tubes; however, this observation has led him to put forth the opinion, that the *mushroom spawn* which gardeners use to rear the edible mushroom, is the *subterraneous byssus* or the branching plant, of which this mushroom is the fruit. That this remark is just, observations will shew, but its truth was glanced at rather than demonstrated by Beauvais, and botany continues to separate as distinct genera, the byssi and the agarics. Yet cryptogamists generally admit, that what is termed a mushroom is rather an *apothetium*, or the fruit of a plant habitually subterraneous. M. Cassini has proved, that several mushrooms derive their origin from a *thallus* situated either in the interior of the earth, or at the surface of bodies that bear mushrooms; he thinks that it is the same with all, and this opinion is confirmed by divers observations of Turpin.

It is generally known that the edible agaric is the fruit or *apothetium* of a filamentous subterraneous plant, but this filamentous plant or *thallus* does not present itself to observers in a state of integrity; it is divided into little fragments in the mould that gardeners use to produce in beds mushrooms for the table. M. Dutrochet has had an opportunity of seeing in its perfect state the thallus of another species of agaric on a damp wall; he found a *byssus parietina flavesces*, on which were developed three agarics with conical caps, which were evidently a production of it, but whose species on account of their advanced state could not be determined. However, it is only by the mushroom or fruit that it bears, that the byssi can be distinguished; for the thallus is so similar in all, as to afford no specific character.

A second observation made by Dutrochet, has allowed of his

pursuing his inquiries on the relation between the mushroom and the byssus, or rather between the *thalli* and *apothetia* of one and the same cryptogamia. Last December he found the *byssus parietina argentea* growing on the shelves of a damp cellar. This plant followed a different evolution from that observed by Beauvais and Vaillant, as they appeared at once issuing in short radii from a common centre, frequently anastomosing, but differing in their fructifications, since those of the first shewed an abortive boletus, while those of the second were true agarics.

As long as the *byssus parietina* remained sticking to the plank, that supported it, the moment it came to the edge of the board its ramifications hung in the air like fine filaments of the byssus and very long. These filaments combined at their extremities, having water interposed. The combination of these filaments, as well as the water which accumulated there by its gravity, swelled up this lower extremity into a bulb; the swelling increased rapidly; very soon a gap occurred which showed a yellow body. This body was rudiment of agaric, contained at first in an envelope of the fibres of the byssus, and which soon broke through its covering. Its upper surface was white, which proved that it was covered by a portion of the (volva?) forming a felted tissue easily distinguished by the microscope. This envelope being taken off, the agaric appeared yellow on its upper as well as its under surface.

This agaric was irregular, its cap forming only a portion of a circle; in some cases it was provided with a pedicle, in others not. Stripped of its pedicle, the agaric was found glued by its upper surface to the under surface of the plank to which it adhered, through the medium of the envelope, from which it seemed in a great measure to derive nourishment. In another case the pedicle, which, by its inclined position, received a sufficient quantity of juices, alone furnished the development of the pileus; the lamellated surface of the rest of which was directed towards the earth instead of looking towards the byssus.

The envelope and pedicle of these agarics are, as we have said, formed at first of distinct filaments. These threads, perfectly homogeneous, do not carry to their surface seeds in sufficient quantity to alter their colour; yet, the abundance of them in the cap gives it its remarkable yellow colour. On the laminae of the inferior surface, the abundance of the receptacles of the seeds is so great, that with the microscope we see nothing else. Still these laminae are composed of filaments, all similar to the tissue of the envelope, the pedicle, and the byssus; what is remarkable is, that the filaments giving birth to the pedicle and envelope by their reunion belong to different branches of the mother plant.

The observations relative to the mode of formation of the envelope and organic pedicle of this agaric, constructed of filaments, single at first, prove that this living organic tissue is formed by the combination of a great number of living filaments, which have each their particular vitality. This fact of the greater importance in physiology, confirms the assertions put forward long since by M. Turpin,

who, as we know, considers vegetables as complex beings, formed by the reunion into organic tissue of an immense quantity of filiform or globular beings or essences.—*Journal de Chim. Med.*, May, 1834.

Peculiar Dental Apparatus belonging to the Vertebral Column.—M. Jourdan, Director of the Museum of Natural History, at Lyons, has found in the *Coluber Scaber* of Linnæus, at the beginning of the digestive canal, a sort of denticular arrangement composed of thirty bony apophyses, with heads covered with enamel, and some of which had the shape of our incisors, and which jut out about two lines at least. These apophyses are thirty in number, they belong to the thirty superior vertebræ. Their shapes divide them naturally into two series. The first series consists of twenty-two, from the third to the twenty-fourth vertebra inclusively. They are lengthened from before backward, and are flat in the transverse direction; their projection from the body of the vertebra is not more than half a line, and their crown is sharper the nearer their situation is to the head of the snake. Their direction is not the same, the anterior ones being directed downwards and backwards; the middle ones directly downwards, and the posterior ones downwards and forwards. In the individuals observed by M. Jourdan, all the teeth had not penetrated the lining membranes of the pharynx; the first eight were completely covered by them, but the latter, at the point of contact, were very thin and translucent. The second series consists of ten apophyses, all, except one, of these penetrated the cavity of the pharynx. Their projection was two lines; the most developed are the third, fourth, fifth, and sixth. The strength of the latter are as that of the incisors in man.

These dental apophyses are formed of three substances:—1st. A layer of enamel which covers the crown, and is prolonged on the neck. 2nd. A bony substance, but having more the character of ivory than bony substance in general. 3rd. An areolar cellular substance, occupying the centre of the apophyses, and communicating with the spongy tissue of the body of the vertebra. The layer of enamel is not deposited until a late period, viz. when the apophysis is about to penetrate the digestive tunics. M. Jourdan has been able to study the different degrees of density of this enamel, according as the apophysis was more or less on the point of appearing in the cavity of the pharynx. He considers as a pharynx that first part of the digestive canal, which contains dental apophyses; it is a large cavity, which extends from the mouth to the distance of some lines below the heart; it terminates by narrowing very much, and giving origin to the œsophagus. Its contractile tunic is composed of two muscular layers, viz. an internal one, of which all the fibres are longitudinal, and an external one, the fibres of which are inclined obliquely downwards and forwards, and terminates at the median line in an aponeurotic band, which serves it for a common raphe. This latter muscular layer is only the anterior part of the transversalis abdominis. The mucous membrane presents (as in all the other ophidiens) longitudinal folds; but it is here very remarkable for the openings which traverse the

dental apophyses. Those openings are simple slits parallel to the axis of the body for the apophyses of the first series; for the eight of the second series, they are true collars which adapt themselves to their forms, and embrace them exactly. These collars adhere only at the base of the apophyses, and terminate in two lips, whose tissue is analogous to that of the gums. M. Jourdan thinks that these dental appendages do not exist from the first in the digestive cavity, and that it is only after a time and in succession, that they penetrate it.

To sum up:—what constitutes this curious anatomical disposition, which M. Jourdan has discovered, is first, the existence of *apophyses of the vertebræ*, having the form of teeth, executing their functions, and, like them, having a crown covered with a layer of enamel. Second, the presence of these apophyses in the interior of the digestive canal. It is necessary to keep in mind, that they are *apophyses* and not *teeth*, which distinguishes them from the pharyngeal teeth of carps and cartilaginous fishes.

The *Coluber Scaber*, which presents this singular organization, is from two feet and half to three feet long. Some years ago this animal was thought to be a native of India; but it is now well known that Southern Africa is its proper country. Snakes of this species are very common on the coast west of the Cape. It is there that those of which Smith has given the description, have been found; the same as those dissected by M. Jourdan. Smith was wrong in saying that the *Coluber Scaber* had not maxillary teeth. The animal has maxillary teeth, as M. Jourdan has demonstrated them, and hence Smith's adaptation to it of the term *avodon*, is unsuitable. All travellers state that the *Coluber Scaber* feeds on eggs, which it swallows without breaking them. The following is the process or mechanism of *taking* its aliment. The snake seizes with both jaws the egg, which would slip down were it not stopped by the little teeth that meet there. It is the dental apophyses, and particularly those of the second series, that break the egg; it passes thus into the œsophagus, and thence into the stomach. To change in any respect the anatomical disposition here described, would have been to change the habits of the animal. But for the dental apophyses, the digestion of the egg swallowed whole, would not have been possible; and if strong teeth had been placed in the jaws, the egg would have been broken before it could be useful to the animal, for the greatest part of the nutritious substance would have run out of the mouth.—*Archives Generales de Medecine*, July, 1834.

M. Jourdan says that the enamel that covers these dental apophyses is not produced by the mucous membrane, as it is in the true teeth by the gums, but that it is a production of the periosteum, which covers them before they penetrate the intestinal membrane.—*Rev. Med.*, August, 1834.

ANATOMY AND PHYSIOLOGY.

Anatomico-Pathological Researches on the Pneumo-Gastric Nerve, by J. T. H. Abers of Bonn. *With Observations on Diseases of that Nerve*, by Dr. Hankel.—The state of integrity or disease of the pneumo-gastric nerve has, by reason of the important functions it presides over, attracted much of the attention of the more modern pathologists. In all the post mortem examinations that came before him for nine years, Dr. Albers has never omitted to take notice of the state of this nerve. In the treatise before us, he mentions only those diseases in which the nerve had been most frequently involved.

In the autopsies of forty-seven persons who died of hooping cough, (some in the second, but most in the first stage of the disease,) he examined both pneumo-gastric nerves in each subject, from their origin to the diaphragm. In forty-three there was no change in volume, colour, or consistence. Of the four others, who were scrofulous and lymphatic, the nerve of the left side was found in one slightly red, and that of the right side of the same colour in the three others. This redness was similar to that of the par vagum, in subjects victims to typhus fever, and was always on the side the patient commonly lay.

In seven cases of dothenterite the right pneumo-gastric was found red in two instances, the left once. This redness affected rather the tissue of the neurilema than the capillaries of the nerve. It disappeared by leaving the nerve some hours in cold water.

In the case of a robust man, æt. 27, who had been attacked in July with dyspnœa, anxiety, delirium, tetanus, and death, in the course of twelve hours, there was nothing presented itself at the dissection but redness and softening of the cervical portion of the pneumo-gastric nerve. It did not lose its colour by immersion in cold water, but by exceedingly slow degrees, and then was of a yellowish white. No doubt the colour and congestion may be produced on the dead body, by keeping the neck down and the head up, but in such a case the colour will be removed by cold water, and the nerve regain its original hue; but this did not occur in the case just quoted.

In fifteen subjects who died of tubercular phthisis, the par vagum was found developed in a remarkable manner; the right was much larger than the left, and in a more palpable degree than is found in the healthy state. This development of the nerve in phthisis is not rare, it has been observed by Swan and Descot.

In two cases of cancer of the œsophagus, the recurrent nerve was entirely destroyed by suppuration; in another case of perforation of the trachea and œsophagus, the vagum was partially destroyed, as was the recurrent.

In a case of medullary cancer of the mediastinum compressing the trachea and œsophagus, the nerve was developed so as to form a little tumour. The cancerous tumour surrounded the nerve. On cutting

into its neurilema, there was found a tumour containing a substance similar to the cancerous one.

In a patient who died of intermittent croup, there was found tubercles in the left lung, tuberculous development of the cervical and bronchial ganglions, and intimate union of the pneumo-gastric of the right side with these ganglions. From these facts, Dr. Hankel attributes the attack of croup to the irritation produced by the softening of these glands, and the death of the patient to the paralysis of the pneumo-gastric nerve. He is also of opinion that many chronic affections of the chest are owing to organic alterations, tumours, &c. which compress and irritate the par vagum; and that if we find disease in the lung, we too often carelessly omit the minute examination of this nerve.

M. Andral relates a case, in the *Nouvelle Bibliotheque*, remarkable for its anatomical alterations. The patient was a young man of 24 years old, presenting the following symptoms: swollen countenance; œdema of the eyelids, and lower extremities; respiration short, confined, and depending so much on the pectoral muscles, that the lungs seemed paralyzed; inability to remain in the horizontal position; lips and *alæ nasi* blue; the stethoscope indicated no disease of the heart. Death succeeded suddenly to a fit of dyspnœa. On examination after death, a portion of the par vagum was found enveloped in tuberculous glands, below which the substance of the nerve was in a state of cartilaginous induration.

M. Montault has observed symptoms of asthma, of organic affection of the heart, aphonia, &c. determined by the presence of encephaloid tumours, compressing the pneumo-gastric nerves.*

A paper in the *Bulletino delle Scienze Mediche*, by Dr. Breventani, shows the important relation of the pneumo-gastric nerve with the motions of the heart. He states that a woman aged 40, after an attack of pneumonia, was seized with amenorrhœa, difficulty of breathing, and a chlorotic colour of the skin. The menses were restored by the use of preparations of iron. The dyspnœa and colour of the skin continued for near ten years, and the pulse became exceedingly slow. Bleeding did not relieve the breathing; it even became worse some days after, accompanied by pain in the region of the heart, near its apex; vomiting, loss of rest, and delirium. On admission to hospital, the chest appeared large and well formed; the pulse synchronous with the motions of the heart, and only pulsating twenty-eight times in the minute; epigastrium painful on pressure; she was put on low diet. At the end of three days the dyspnœa and other symptoms were aggravated; the pulse fell to 25; the urine full of sediment. She was bled to eight ounces; the blood was of a natural appearance; and the pulse rose to 28; respiration was puerile all over the chest; the sounds of the heart regular, a little stronger than usual, and extending over a greater space, showing dilatation, with uniform hypertrophy of this viscus. It was remarkable that after the

* *Revue Medicale*, 1831.

beat of the auricles and ventricles, there was a period of repose twice as long as the usual interval.

There being no organic alteration to account for these phenomena, Dr. Breventani came indirectly to the conclusion, that "there must be something to impede the action of the nerves giving motion to the heart, and that the impediment was probably owing to a permanent and increasing compression of those nerves." This diagnosis was given on the fifteenth day from her admission, and she died twenty days after. Besides the former symptoms, she got œdema of the lower extremities and trunk; the application of a blister raised the pulse to 37, but it fell soon after to 25, yet always equal in its rhythm and strength; she died suddenly.

Autopsy.—In the chest there were adhesions of the pleura of a recent date. The principal bronchial glands were swollen and filled with calculous concretions; yellow transparent serous effusion in the pleura; there were found about three ounces of the same fluid in the pericardium; the tissue of the heart healthy, its cavities one-fifth larger than usual; the head and abdomen offered nothing of importance.

But on dissecting the pneumo-gastric nerves, there was found, a little below the larynx, an engorged cellular tissue, studded with a quantity of little tumid ganglions, in which the nerves appear to be involved. The nerve of the right side was particularly developed just before it passed behind the bronchi, and adhered to one of the ganglions, having a twisted and flattened look, (*tirailè et aplati*,) it had also contracted other adhesions to the glands, which are near the bifurcation of the bronchi, and which were also filled with calculous concretions.

A thin though robust patient had been some time affected by the following symptoms:—vomiting, and tension of epigastrium; spasms in the calf of the legs; numbness of the fingers and toes; intense dyspnœa; hoarseness; cough; expectoration of viscid mucus; pain in the throat; deglutition easy. Towards the conclusion of the disease, there was imperfect paralysis of motion, and imperfect paralysis of sensation, of both upper and lower extremities. On dissection the dura mater and spinal marrow were covered with a gelatinous layer, easily removed with a sponge. On the spinal marrow of the lumbar region, were found four little tumours of the size of a pea, white in the centre, and brown at the circumference: these little tumours were found to be, as it were, small herniæ of the softened spinal marrow, protruding through the arachnoid lining of the canal. A few tubercles were the only disease to be recognized in the lungs; heart and vessels natural. The neurilema of each pneumo-gastric nerve was engorged with red vessels; the substance of the left was in an advanced stage of softening.

The last case mentioned by Dr. Hankel, is that of a young man, æt. 38, who had got short and painful breathing from a sudden change of temperature, being obliged to walk to recover his breath; the power of speech and sound of the voice were not affected at first; after a fit of half an hour, he usually rallied, but was unable from weak-

ness to resume his occupations for a shorter or longer period. At a more advanced period the fits became more intense; the patient being obliged to sit down and hold his head and chest upright, and to avoid motion or speaking; expiration was more prolonged than inspiration, in the latter act the lips were protruded as if he was going to whistle; the skin became cold; cold sweat bathed the hands and face; the strength became greatly impaired, the patient being obliged to lean on his knees for support, his head falling on his breast at the same time; his voice fell into a low hoarse murmur; the eyes became fixed; the features sharp and contorted; sight and hearing grew weaker. Sad and retired, he made no complaint; he answered no questions except in a low, unintelligible voice; he was resigned, but it was from apathy.

Such was the history of the attacks in the first year or two; each fit lasting from a couple of hours to as many days, coming on at irregular intervals, and sometimes terminating with cough, and expectoration. The attacks, according to their intensity or duration, were followed by these symptoms, viz. permanent constriction of the chest; swelling of the face; cedema of the hands; diminished appetite; oppression at the epigastrium; turgescence of the spleen; a sense of weight in the region of the liver; yellowness of the face; ascites and anasarca to the highest degree.

The description of those symptoms comprises a period of five years; he had once been attacked by a violent fit of epistaxis.

The state of the patient was subject to such frequent changes, that at one time disease of the lung was simulated, at another general weakness seemed to threaten life, or a universal dropsy to suffocate the patient. However, all these symptoms used to disappear after a copious discharge of urine, a diarrhoea, or vomitings, &c. &c.; the disturbed functions were restored by degrees, the appetite returned, and the animal powers so much awakened, that the patient could take very smart exercise on foot or on horseback. But, though he lived well, and ate with an enormous appetite, yet he never put up flesh. One thing is remarkable, that in the course of his disease, even in hot weather, and while smoking, he never felt the slightest thirst.

In September, 1830, he was suddenly seized with convulsive motions of the upper extremities, and facial muscles, and loss of consciousness: the convulsions returned at regular intervals of fifteen minutes, and continued thus for twenty-four hours, when the patient sank.

On Dissection.—Nothing worthy of remark found in the lungs. The substance of the brain and spinal marrow healthy, small quantity of serous fluid in the lateral ventricles. The dropsical fluid was yellowish, and did not coagulate by alcohol nor heat, the observation had been made on his urine in the patient's lifetime. No alteration in the organs of the abdomen. The right pneumogastric nerve had its neurilemma covered with a great number of blood vessels ramifying on it; the tissue of this membrane was not red. The nervous pulp was a little thickened, more firm than ordinary, and of a natural colour.

The left nerve was not so large as the right, but was in such a state of ramollissement, that it was easily destroyed by pressing between the fingers. The coeliac plexus was also less consistent than ordinary.

For a long time pathologists have given their attention to the important influence of the par vagum in thoracic affections, accompanied by nervous symptoms. M. Sachs, of Leipsig, has been particularly zealous in its investigation.* The subject deserves further and accurate research.

Researches on the Influence exercised by Aliment on the Act of Respiration, — Lassaigue and Yvart.—Last year there appeared a memoir of experiments pursued by these gentlemen on this subject; they have lately published comparative tables of their experiments on the one species of animal submitted to two quite different sorts of food. Their conclusions are as follow:—

1st. Under a regimen, in the elements of which there is no azote, animal life can not be supported; the subjects diminished in weight, as the third table proves, and after death were found to have lost more than one-third of their bulk.

2nd. While subjected to this mode of living, the respiratory functions are no longer regular; less oxygen is absorbed, and less carbonic acid expired.

3rd. This difference observed in the chemical phenomena of respiration, being in a ratio with the diminution of temperature, which occurs in the whole cutaneous surface of the animal experimented on, is an additional fact shewing the relation between the respiratory functions, and the production of animal heat.

4th. Finally, the proportion of azote contained in the air cannot ever supply the deficiency of it in the food; which confirms the opinion of several distinguished physiologists, particularly the more modern one of MM. Macaire and Marcet, viz.: “that all the azote found in the tissues or fluids of animals, is derived from the azote that forms a constituent part of their aliment.”—*Journal de Chimie Medicale*, August, 1834.

Memoir on the Lymphatics of the Skin, of the Serous Membranes, and of the Nervous and Muscular Tissue, by V. Fohmann, Professor at the University of Liege, 4to., with ten engraved plates.—This author has placed himself in the first rank among anatomists, by his work on the communication of the lymphatics with the veins in 1821,—his beautiful anatomy of the lymphatics of fishes, in 1825,—his work on the lymphatics of the placenta, and umbilical cord, in 1832, and which forms the first part of the present series. M. Fohmann far outstrips his rival, Mascagni, not only in ascertaining the dis-

* Hanbuch der Natürlichen Systems der Pratischen Medicin. By L. W. Sachs, Leipsig, 1833. Tom. i. p. 289.

posal of the lymphatic trunks, but in his search after the distribution of these vessels in the very tissue of organs ; which, as Mascagni observes, is the most important point to be sought after.

The ultimate distribution of lymphatics is admitted to vary in each organ ; the same observation is to be made on the blood vessels. M. Fohmann shews that the lymphatics do not arise for the most part by free radicals, but by anastomosing plexuses, deprived of valves, and which are finer and nearer to each other, the closer they are placed to the free surface of the tegumentary, serous, and mucous membranes. There cannot then be open orifices at the extremities of vessels, these organic orifices, if they did exist, could only be found in the coats of the vessels.

The first plate of the work represents the lymphatics of the integuments of the chest ; the second, those of the scrotum, the skin of the penis, and glans ; third, those of the mucous membrane of the œsophagus and stomach ; fourth, the lymphatics of the mucous membrane of the ileum ; fifth, those of the mucous membrane of the colon ; sixth, lymphatics of the mucous membrane of the tongue, larynx, trachea, and bronchi ; seventh, those of the urinary bladder and urethra ; in the eighth are represented the lymphatics of the serous covering of the heart ; in the ninth, those of the pleura covering the diaphragm, and those which form (*gaines*) meshes around the fibres of this muscle ; in the tenth plate are represented the lymphatics of the arachnoid and pia mater ; those plates are all very carefully engraved.

This work is additionally useful to anatomists, as it gives the manipulations of those materials by which M. Fohmann has been enabled to make his preparations ; and we may be assured of the accuracy of the plates from this circumstance, that M. Lauth has succeeded, by following his directions, in injecting several parts which have afterwards exactly corresponded with the delineations of M. Fohmann.—*Archives Generales*, August, 1834.

PATHOLOGY AND THERAPEUTICS.

Saturnine Amaurosis.—In a memoir on this subject recently published by M. Duplay, of the Hopital de la Pitié, attention is directed to the following propositions :

1st. Amaurosis, succeeding to colic from lead, or to the nervous colic that approaches it, presents this characteristic, viz., that it shews itself suddenly ; in some hours the patient completely loses the power of vision, and can no longer distinguish the light.

2nd. It commonly makes its appearance after several attacks of

colic; yet it may supervene on the first attack as well as many other lesions of innervation in some individuals affected with lead colic.

3rd. Most commonly the disease is announced by the following symptoms; cramps; pains in the arms; some paralysis of the wrist; epileptiform fits and delirium; occasionally on the contrary it comes on suddenly, and it is only after some time the other symptoms make their appearance.

4th. The duration of this form of amaurosis is commonly short; some hours to one or two months; the mean term is five or six days; in one single case from lead colic it had resisted all the means employed. It has shewn the same tenacity in another case observed by Felix Plater, in which the amaurosis coincided with a hysterical colic. Stoll says, that amaurosis from lead, or hysterical colic, is temporary, and disappears on the cessation of the paroxysm.

5th. The same treatment as for lead colic generally dissipates the amaurosis; in one case large bleedings were inefficient, and purgatives have removed it in another, where it was complicated with nervous colic and constipation.—*Archives Generales*, May, 1834.

Perforation of the Duodenum by a Biliary Calculus.—A woman, aged seventy-five, entered the Infirmary of the Salpêtrière, on the 14th January, affected by the following symptoms; vomitings, (at first of the alimentary mass, afterwards of bile,) intense pain in the epigastrium and right ileo-cæcal region; constipation; tension of the abdomen, affording to the touch the sensation of stercoral matter in the colon. She died on the 17th of the same month. On inspection, the duodenum was united by adhesions to the gall-bladder, and liver; at the superior part of the small intestine was a tumour, the size of a pigeon's egg, formed by a biliary calculus, which had passed from the gall-bladder into the duodenum, through a large aperture which was limited by the solid adhesions that united these two organs.—*Rev. Med.*, July, 1834.

Inflammation of the Pulmonary Artery.—A workman, æt. 65, who had always enjoyed good health, though a great brandy drinker, had become affected latterly with cough and mucous expectoration, which, however, did not prevent him from following his occupation. After working one day in the water, he was seized with shivering, pain in the side, and dry cough. He tried some remedies at home, and then applied to Dr. Hankel. On the 2nd of June he presented the following symptoms: countenance pale and disturbed; eyes prominent and brilliant; cough short and dry; pain, and a sensation of compression about the middle of the chest; dyspnœa, particularly at night, which prevented his sleep; continual thirst; anorexia; white tongue; hot skin; pulse 100; respiration accelerated; gait slow and insecure. He had been eight days affected in this manner; there was an increase of fever during the night of the 2nd. The morning of the 3rd, the agitation of the patient was much increased; dyspnœa; frequent

cough, without expectoration; continual desire to make water; countenance more fallen; the pulse weaker. The afternoon of the same day his agitation was redoubled; the patient got out of bed several times; at five in the evening his anguish was so extreme, that he left his room complaining with a tremulous voice of his painful state, and wished to move to a room on an upper story, for the sake of fresh air; his wife hearing him go hastily up the stairs, ran up after him, he had just time to throw himself on a bed, was attacked with a slight rattle, and died on the instant.

Autopsie.—The eyes, that during life had been prominent, were now sunk; the lungs (marbled white and blue) did not fill the thoracic cavity completely; they appeared to the touch engorged with blood; on cutting into them there flowed a moderate quantity of blood, not very deep-coloured; the tissue of these organs felt sufficiently elastic; there existed old adhesions at their lateral and posterior parts; the heart was not distended with blood; it contained some concretions, resembling polypi, particularly in the right ventricle; the lining membrane of the heart, that of the arch of the aorta and its valves were healthy. The pulmonary artery contained similar concretions; one of them was remarkably large and firm, but did not adhere in any part; the parietes of this artery were of a uniform intense redness, as if they had been rubbed with black-cherry juice; this redness could not be removed by washing nor by scraping with the handle of the scalpel; it penetrated the whole thickness of the lining membrane of the blood-vessel; the capillary vessels were not injected; this red tint did not extend to the right ventricle, nor to the lungs. The other large vessels presented nothing similar. There was nothing remarkable either in the cranium or abdomen.—*Archives Generales*, August, 1834.

Ossification of the Muscular Tissue, by D. L. Rogers, M. D.—This interesting case is related in the American Journal of Medical Science, for February, 1834, a periodical to whose high merits we feel happy in bearing our testimony.

A boy, *ætat.* 13, had enjoyed excellent health until six months before the date of the communication. His health then began to fail without any perceptible cause; the first symptom being loss of motion in the arms. The right arm became fixed to the side, and the head inclined downwards on the sternum. In other respects his functions were naturally performed. On examination it was found that the pectoralis major was ossified in its superior portion; as was also the sterno-mastoid. In these situations the bony deposits formed high and irregular elevations. From the depositions of bone, the back also presented a tubercular appearance, all the muscles going to the scapula being more or less affected. The latissimus and longissimus dorsi were affected, the latter forming as it were a splint.

A variety of treatment calculated to prevent the formation of bone was used, but without success. But it is remarkable that the bony deposits changed their situation to a certain degree, so that the head

regained its erect position. He soon after died. The muscles were found extensively ossified; but the viscera presented no morbid appearance, except an enlargement of the mesenteric glands. Abscesses had formed in the sides and near the hip joint.

Use of Veratria. Dr. Johnson's Experience of its Effects.—In the fourteenth number of this Journal, we expressed our opinion strongly as to the merits of Dr. Turnbull's work, and endeavoured to shew, that it was at the least a most inconsequential production. Nothing can be plainer than that the merits of the work, and the powers of the medicine, are two essentially different questions. We feel great pleasure in inserting the account of Dr. Johnson's experience of this remedy, as given in the July number of the *Medico-Chirurgical Review*.

"In our last number we expressed a hope that the experience of others might confirm that of the author, promising at the same time that we should communicate the results of our own trials. It is unnecessary to assure our readers, that on this, as on every other subject of professional inquiry, our minds have not been biassed either by prejudice or partiality. Truth and justice are ever the only guides of our conduct.

"In two cases of facial neuralgia affecting the infra-orbital nerves, and which had continued, with varying severity, for three and seven years respectively, the use of the strong veratria ointment has been followed with speedy and decided relief; the paroxysms being rendered not only of much shorter duration, but also less agonizing and of less frequent occurrence. One of the patients, a carpenter, about sixty years of age, had been for nearly two years so afflicted, that he was quite incapable of following his work during almost the whole of that time; every alteration in the state of the weather, however trifling, inducing a fit of pain. After a week's employment of the ointment his condition was greatly improved, and along with the comparative ease which he enjoyed during the day, he began to sleep quietly at night; a comfort of which he had been nearly quite deprived.

"The second case, occurring in a countryman, of between sixty and seventy years of age, was as satisfactory as the preceding. Both patients are indeed still subject to returns of the enemy's attack; but so confident are they of having him under their power (by rubbing the affected parts with the ointment until its full effects are produced) that they always carry a box of it in their pockets wherever they go.

"We have seen a third case of painful affection of some of the twigs of the infra-orbital nerve, in a middle-aged lady. It had resisted a great variety of treatment; but has now yielded almost entirely to the use of the veratria. From the circumstance however of this patient being of an extremely nervous and delicate constitution, as well as from the other features of the case, we were inclined to regard the facial pain, rather as one symptom of hysterical disease, than as a specimen of genuine or idiopathic neuralgia. Nevertheless

we must confess, that it had tortured her for a length of time, and that the relief which she now enjoys is truly great.

"The fourth case was one of rheumatic neuralgia, affecting the lower extremities. The disease had originated about twenty years ago, from exposure to cold and damp; and the patient, a clergyman, had tried a host of remedies, prescribed by many of the most eminent medical men of this metropolis, with very little advantage. The nerves chiefly involved, appear to be the superficial branches of the anterior crural and fibular trunks. The results of his experience of the veratria ointment are, that whenever he is able to induce its peculiar effect upon the parts, the pain begins to abate, and then gradually subsides. He is also of opinion, that the recurrence of the paroxysms has not been so frequent.

"The fifth case was in some respect similar to the preceding one, but much more severe. The trunk of the sciatic and the branches of the gluteal are chiefly affected.

"Frictions with strong veratria ointment (ʒij. to the ʒj.) were repeatedly tried, but without any avail; the sense of burning or tingling could not be induced. Under these circumstances Dr. T. says, that we have no reason to expect any benefit. Whoever therefore gives a trial to his remedy ought carefully to attend to the test which he has pointed out as indicative of the operation of the drug. Three cases of heart affection, in which Dr. Turnbull thinks the veratria has been of decided advantage, have been submitted to our inspection; but the data which have hitherto been furnished, are as yet quite insufficient to warrant us in affixing the stamp of our testimony to the correctness of his opinion. The patients indeed confessed, that the cardiac distress was always relieved whenever the effects of the veratria were induced. We willingly give credit to this; because we are satisfied that the medicine exerts a very peculiar effect as a counter-irritant; and it seems to differ from almost all others in this respect, that its operation is confined solely to the nerves of the part, the blood vessels being scarcely affected.

"It is, therefore, our decided opinion, that veratria is a useful and very potent medicine, in certain nervous affections, and that it deserves to be, and no doubt will become an established member of the *Materia Medica*. Few, perhaps, can hope to obtain such wonder-working results as Dr. T. has had the good luck to achieve. Parents are naturally over-fond of their offspring!

"As sincere friends of the profession, we deprecate alike the extremes of indiscriminate applause and of incredulous condemnation."

With the concluding observation of this eminent and philosophical physician we fully agree. Yet we must repeat the statement of our conviction of the tendency of works like Dr. Turnbull's. Books like those only degrade the profession. The public mind is not yet prepared to estimate the value of such statements, and is captivated by a list of successful cases, while it forgets that it is only the bright side of the picture that is presented. Unless all the cases (and the number must be considerable) in which a remedy has been tried, are given, and the successful balanced against the unsuccessful, no le-

gitimate conclusion can be come to as to the virtues of any remedy. In Dr. Turnbull's hands, too, we doubt not that veratria will be more successful than with another; for its effects will have the potent assistance of faith, on the part of the sufferer. Heurnius, in speaking of white hellebore says, "*has facillime utimur nostro preparato helleboro albo.*"—Lib. II. Prax. Med. There is nothing new under the sun. The ancients employed white hellebore for a variety of diseases, and though they speak highly of it, yet are more moderate in their eulogiums than Dr. Turnbull. Indeed, this author and Dioscorides are at issue, for the latter declares, that some constitutions at least will not bear the remedy. "*Medetur comitialibus, melancholicis, podagricis; vetatur senibus, pueris, mollibus, et effeminatis.*"

But Dr. Turnbull gives it to all, so as to make us apprehend that the effect, "*quondam terribile,*" as noticed by the ancients, has been produced upon him—"Ilias acii ebria veratro."

Effects of Iodine on the Epidermis and Hair, by M. Stedman.—The author relates, that in the winter of 1831, having amputated the foot of a person affected with scrofulous disease of the instep, he was for a long time unable to obtain a cure of some scrofulous ulcers situated on the tibia. Wishing to act on the constitution, and to combat the diarrhœa, which seemed to keep up the disease, he prescribed iodine. Before the appearance of the ulcer had been modified, and about a fortnight after the patient had commenced the use of the iodine, he remarked, that the scalp which for a long time had been covered with scales and filth, was completely freed from them, and that the hair which had been formerly dry and filthy, had become soft, and had acquired a bright gloss.

The observation of these changes directed the attention of Mr. Stedman to other scrofulous patients, under the same medical treatment. Similar changes occurred. One thing is remarkable, that while the hair and scalp experienced this improvement, the tumours or scrofulous ulcers, against which the medicine was specially directed, remained in the same state. All the patients were kept to a milk diet, and the iodine was administered according to the following formula of M. Lugol:

R. Iodini, gr. v.
Pot. Hydriodat. gr. x.
Aq. Distill., ℥iv.

Capt. gutt. vi. bis in die; dose aucta gradatim ad gutt. xl.—*Boston Medical Magazine.*

A Case of Poisoning by Carbonate of Barytes.—A young woman who had fasted for twenty-four hours previously, and who seems to have laboured under some severe moral depression, half filled a tea-cup with carbonate of barytes, and then filled up the cup with water. She swallowed the whole, in which she discovered no particular taste. Soon afterwards, medicine which occasioned vomiting was given to her.

On her way to the Middlesex hospital in the evening, two hours after the event, she found, for the first time, dimness of vision, succeeded by double vision, ringing in the ears, pain in the head, and throbbing in the temples, a sensation of distention, and weight at the epigastrium: she said she felt as if blown up with wind, and complained of palpitations.

When in bed, she first complained of pain in the legs and knees, and cramps in the calves. She vomited twice a fluid like chalk and water, which formed a deposit. Her skin was hot and dry; her face flushed; pulse eighty, full and hard. Repeated doses of sulphate of magnesia were given to her.

During the night she had fifteen evacuations; had no sleep, from pain in the head and epigastrium, and ringing in the ears.

The next day she had a hot skin, with profuse perspiration, and slight pain about the pharynx. Her tongue was covered with a white fur, and moist.

A day or two after, the cramps became more severe in all the extremities with a sense of weight, and soreness when touched.

These symptoms, slightly modified, lasted a long time: those which persisted the longest, and which still exist, are severe pains in the head, pain in the left side and epigastrium, great and long-continued palpitations. There has been much difficulty in persuading her to take any sustenance.

She recovered slowly, and left the hospital in the latter end of June.

Orfila has concluded that pure barytes, or the carbonate, produces death by acting on the nervous system, and that it corrodes the parts it is brought in contact with. Mr. Brodie believes, from experiments with the hydrochlorate of barytes, that death is occasioned by its action on the brain and on the heart. In the case related by Dr. Wilson, the nervous and the circulating systems were disturbed; but the fortunate issue prevented the discovery of the actual lesions, if such there were, which the poison occasioned in the stomach.

The appropriate antidote, or rather the most useful remedy, in poisoning by barytes, is thought to be the sulphate of magnesia. This is founded on the fact, that sulphate of barytes is readily formed, and constitutes an insoluble and inactive compound.—*Medico-Chirurgical Review*, October, 1834.

Phlegmasia Cærulea Dolens. (Communicated by Dr. Stokes).—A middle aged woman was attacked, about three weeks after delivery, with symptoms of an intense peritonitis, for the removal of which the most active measures were necessary. These were succeeded by a state of extreme prostration, and after a few days, intense and universal bronchitis set in; so severe as for a considerable time to leave scarcely a hope for the recovery of the patient. It became necessary after the first few days of this attack, to have recourse to the free use of stimulants, consisting of wine, the decoction of senega with carbonate of ammonia, and the employment of blisters to the chest. The chest affection gradually

subsided, and the patient appeared convalescent, when she was suddenly attacked during the night with violent pain in the left leg and thigh: and on the next morning the affected extremity presented all the appearance of acute general phlegmasia dolens, with the exception of the colour. The limb from the groin downwards, was universally and equally enlarged. It was hot, elastic, exquisitely sensible, and deprived of motion. There was little or no swelling of the glands of the groin, nor was there any apparently cordy state of the saphena; but the remarkable circumstance was the colour of the limb, which was a deep purple hue, in some places almost black, and presenting more or less of a mottled appearance. This coloration was universal, and presented a most extraordinary contrast with the rest of the body.

The patient was treated by leeching, and the free exhibition of calomel and opium, the strength being supported by nutritious broths. The discoloration of the limb disappeared in the course of a few days, and her recovery was rapid and complete.

It was remarked in this case, that during the first days of the inflammation, no pulsation could be felt in the femoral artery at the groin. But this returned with the subsidence of the swelling.

Case in which an Ear of Grass impacted in a Bronchial Tube, gave rise to the Symptoms of intense Bronchial Inflammation, by William Donaldson, M.D., Ayr.—Miss E. F. æt. 11, on the 7th August, complained of cough and exceedingly deranged stomach and bowels, with very foetid breath. She got two or three doses of medicine, (sema and salts), as nothing else than a deranged stomach was apprehended. About the 4th of September she was seized with violent vomiting, of green bilious-looking matter, with much cough, and purulent expectoration so foetid, that the smell was almost insufferable; but without any fever or symptoms of inflammation. She got medicine, which produced most offensive stools.

The cough still continuing, although there was no pain in the chest, a blister was applied: this discharged freely. About this time the pulse rose to 100. The cough continuing, the blister was reapplied. She complained *now* of some pain under the blistered part, which she described as some rough substance passing up and down under the *sternum*; for this leeches were applied. On Thursday the 19th September, she had a violent fit of coughing, when she brought up a head of grass (*Cynosurus cristatus*).

From this time she felt easier, and the expectoration became less foetid. The cough still continuing, the blister was again applied, and as it began to discharge the cough abated, and the expectoration lost its fœtor. In a week after, the cough and expectoration were nearly gone. She was able to leave her room, and has continued to recover strength rapidly.

It appears (for it was concealed at the time) that, about the 1st of August, having some grass in her mouth, she was seized with a fit of coughing which almost choked her, when of course it must have got down. But this circumstance was never mentioned to any of the

family, or the medical attendant, till it came up. There never was appearance of blood with expectoration but once.

The above case is very curious and interesting in many respects.

The rough substance must have stuck either in the windpipe or in one of the middle sized bronchial tubes. It did not seem to have lodged behind the palate, because the patient never complained of sore throat, or of any unpleasant feeling there.

I send you the case, with the head of grass as it was discharged, as I am not aware of any case so remarkable on record.—*Edinburgh Medical and Surgical Journal*, July, 1834.

Crepitatio Musculorum—a new, or very rare Affection.—Dr. Johnson gives the following remarkable instance of this curious complaint. A lady of distinction and title, aged between 60 and 70, had enjoyed the most perfect health till within these few years. About that period she experienced some anomalous feelings about the head, indicative of fulness of the cerebral vessels, and these were accompanied and followed by certain vitiations of the senses of tasting and smelling. These symptoms she disregarded, her health being, in other respects, pretty good. Gradually, however, she began to perceive a weakness in the left lower extremity, with some uneasy sensations in the line of the sciatic nerve between the hip and the knee. This debility steadily increased, during the last twelve months, and she is now obliged to go on crutches. The muscles of the thigh, but not of the leg, are flabby and a little wasted. She can move the extremity in every direction; but has not the power of leaning in the slightest degree upon it. The most singular phenomenon, however, is this:—that, whenever she either bends or extends the knee, a crackling noise is distinctly heard, even at a considerable distance, along the course of the rectus femoris muscle, exactly resembling the cracking of fingers when stretched. The action of flexion and extension is accompanied by painful sensations in the rectus femoris, the two vasti, and the cruræus. When at rest, she feels no pain. Mr. Brodie and the senior Editor of this Journal examined the thigh with the greatest care. The ear was repeatedly applied along the muscles above-mentioned, and the crackling noise was loudly heard. As the ear approached the knee-joint, the noise diminished, and it was perfectly evident that the sound did not proceed from the joint, but from the muscles of the thigh. In the whole course of his experience, Mr. Brodie never met with but one case at all resembling this. It was a gentleman who complained to him of such strange and anomalous sensations about the right shoulder and side of the back, that he thought for some time the gentleman was hypochondriacal, and fancied a host of morbid and unintelligible feelings. In one of his visits the patient asked Mr. Brodie what could be the cause of the cracking noise in his back. Mr. Brodie had not been made acquainted previously with this symptom. But the patient soon convinced him of its reality; for, on moving the arm up and down, there was a cracking noise emitted from the muscles about the shoulder, and especially the latissimus dorsi,

so loud that it could be plainly heard even in an adjoining room. Mr. B. examined with the ear, and clearly ascertained that the noise proceeded from the muscles, and not from the shoulder-joint. In this case there was no diminution of muscular power, but only painful sensations. The gentleman, in the course of some years, got rather better; but Mr. B. lost sight of him, and the final result is not known. In respect to the lady, various means had been used, and half a score of physicians and surgeons had been consulted, without the slightest benefit. She was finally recommended to go on a tour up the Rhine in August of the present year, more to divert her mind, and give a fillip to the general health, than with any prospect of recovery from the local complaint. She had heard so much of the "Bubbles of the Brunns," that she was anxious to try their efficacy. They will probably burst and leave no mark of their power behind.

What is the nature of the cause of the phenomena above-mentioned? We believe it would puzzle a Philadelphia lawyer to solve the problem. For our own parts, we are completely *pozed*—and we shall not trouble our readers with any of the hypotheses we have formed to unriddle the mystery. The lady, who is very intelligent, says that she feels as if the muscles were dry, and snapped or cracked, with some pain, when she puts them in motion. By the way, can any one explain the cracking of the finger-joints when forcibly extended? It rarely happens that a joint can be made to crack more than once, however often the extension may be repeated at that time. Is it the forcible separation of articulating surfaces that were in perfect contiguity? All separations of such surfaces produce a noise. But why can it not be repeated till after a period of time? We shall keep an eye to the case above-mentioned, and communicate the result to our readers.—*Medico-Chirurgical Review*, October, 1834.

SURGERY AND MIDWIFERY.

Dissertation on Melanosis of the Globe of the Eye.—In the pathological part of this little work, M. Pruscha, after having enumerated the different diseases affecting the choroid and the iris, considers the inflammation of the veins of these membranes. This inflammation, which is particularly occasioned by wounds of the parts, the effects of cold, the impression of too vivid a light upon them, and the too violent exercise of the eyes, is manifested by a great diminution of vision, a disagreeable heat in the eye and surrounding parts, slowness in the motion of the iris, swelling of the pupillary margin: at a later period the pupil (that was at first dilated) contracts; becomes angular and less black; the iris appears convex and of a deeper colour; the sclerotic, as it approaches the cornea, assumes a livid colour, and presents the vessels in a varicose state; the globe of the eye becomes harder; the secretions are diminished, and the sight is so weakened, that objects appear as if enveloped in a grey mist.

This inflammation terminates by resolution, or extends to the other parts of the globe of the eye, or gives place to lymphatic exudations; varicose changes; *cirsophthalmie* or melanosis. M. Pruscha next divides melanosis of the globe of the eye into external and internal.

External melanosis has its seat for the most part between the conjunctiva and sclerotica, where it forms an unequal tumour, which grows by degrees to the size of a nut, and resembles what is termed *staphyloma racemosum*, but is distinguished from it by its brown colour, and by its seat. This tumour, if left to itself, destroys the eye, and produces considerable disturbance in the system. The inflammation which is manifested later, covers the tumour with lymph and pus, and renders it difficult to be recognized. The iris is visible only in the beginning of the disease, at a later period that membrane becomes involved in it. A thick brownish liquid, mixed with friable clots, flows from the tumour.

Internal melanosis is manifested by a brown spot situated behind the pupil at the bottom of the eye; this spot becomes apparent by degrees; a tumour forms, which grows forward, compressing the crystalline and other parts, and obscures the former. The iris is changed in colour; the pupil becomes narrow, but allows the brown colour of the tumour to be perceived behind; the latter contracts adhesions with the iris, which it pushes forward; the cornea loses its transparency, becomes inflamed, is confounded with the tumour, as are the other tunics of the eye. However, before the disease has arrived at this stage, small melanotic tumours may be observed on the sclerotica, conjunctiva, and cornea. When besides the globe of the eye the surrounding parts are affected, the whole economy suffers; a fever of a nervous type shews itself, and commonly ends fatally.

The treatment of melanosis consists in preventing its development, by means suited to allay inflammation of the veins of the eye; such as general and local bleedings; cold applications; emollients and resolvents; decoctions of marsh mallows, dent de chiens, dog's grass, or dandelion, with the addition of nitre, sulphate of magnesia, or other neutral salts; strict regimen; and when accompanied by irritation of the vascular system, calomel, antimonials, and digitalis are the principal means to be resorted to. Once the melanosis is developed, it is impossible to resolve it; extirpation of the globe of the eye can alone prevent the spreading of the disease, and the operation should be practised, if the constitution and strength of the patient be good.

M. Pruscha ends with two observations on this species of melanosis. Two women had been operated on by Professor Rosas, of the ophthalmic hospital at Vienna, by extirpation of the globe of the affected eye. In three and six months after, they presented no appearance of return of the melanosis. In one of the extirpated eyes there was no trace of retina, vitreous humour, crystalline, or iris, all was transformed into a blackish-brown matter, interwoven with strong fibres; the part of the tumour which had traversed the cornea was detached and dissolved in water, to which it imparted a blackish-brown colour. In the eye of the second patient, the choroid was the

only part affected with melanosis; the retina and vitreous humour were transformed into a brownish semi-fluid matter; the crystalline was slightly muddled; the iris was of a dirty blue colour; the cornea regular, but pushed towards the inferior floor of the orbit; the choroïd was changed into a greyish-brown mass resisting and vascular. Another case of melanosis is mentioned, where the disease began in the lowest part of the anterior chamber, which after some time it filled up completely. It is remarkable, that during the development of this latter case, there came on in the same eye an inflammation of the conjunctiva, with ulceration of the cornea; these accidents had no influence on the principal disease, and yielded rapidly to a solution of corrosive sublimate, with laudanum.—*Archives Generales*, August, 1834.

A Case of Imperforate Hymen, (communicated by Charles O'Reilly, M.D., Licentiate of the King and Queen's College of Physicians, Ireland, and Physician to the Dublin General Dispensary, Fleet-street).—I was requested to visit Amelia Brown, residing in Britain-street, a young lady, aged 18 years, who stated that she had been ill for the last eighteen months, but that at the commencement of each month, her symptoms were aggravated; having violent pains in the back and loins, accompanied by a sensation of bearing down, and with sickness of the stomach. She suffered, as it was supposed, from amenorrhœa, and was treated accordingly by several professional men. At the time I saw her, the 17th of April, 1834, she complained of pain in the abdomen and loins, shooting down the thighs, and with occasional difficulty in passing her urine; having received permission to make an examination, per vaginam, to satisfy myself, and having introduced a catheter to draw off the urine, I discovered in the hypogastric region, a circumscribed elastic swelling rising above the brim of the pelvis, and extending nearly to the umbilicus, which she described as having progressively increased for the last twelve months. From the situation and feel of this tumour, I was led to suspect some uterine disease was present. I found a complete impediment to the introduction of the finger into the vagina; and on a more accurate examination, the orifice of the vagina was found to be preternaturally and effectually closed by a thick dense membrane. Medical treatment having failed to afford any relief, it became apparent that the swelling and pain were owing to the uterus being distended by the retained menstrual fluid, which was confirmed by an examination per rectum, through which a distinct fluctuating tumour was perceptible; on pressing the hypogastrium, her sufferings were increased, and the hymen rendered tense and fluctuating. I placed the patient on her back, with her limbs drawn up in the usual lithotomy position; I pushed a strong lancet through the hymen, which was very thick and tough; about two pints of a tar-like fluid, homogeneous in its character gushed out: the day following the aperture was enlarged by my friend, Mr. Hart, and a dossil of lint dipped in oil was introduced, which was afterwards changed for that of sponge, for the

purpose of preventing the reunion of the lips of the wound ; in a few days it was healed. She has now a vagina of natural appearance, and enjoys good health, having menstruated regularly since that period.

Extra-Uterine Fœtation.—In the Archives Generales for July, there are some observations of great interest from the pen of Ollivier, (d'Angers,) upon a case of extra-uterine (tubal) fœtation, which gave rise to a fatal hæmorrhage. The history is briefly as follows:—Pierrette Vincent, æt. 28 or 29, for long past in a bad state of health, was attacked with uterine hæmorrhage, at the beginning of April, for which she consulted a quack doctor, April 24, and took some pills, (the French Morison's we suppose.) Notwithstanding which the "shedding" continued, and (May 9) she was suddenly seized with pain in the belly and hiccup, fainting, vomiting, coldness of the extremities, discoloration of the skin, and in short, all the symptoms of internal hæmorrhage. All possible remedies were employed, but she died the same evening. The suddenness of her death, in connexion with taking the pills, caused some suspicion, and a medical investigation was ordered.

The autopsy took place the next day. The cavity of the peritoneum was filled with fluid blood, and the pelvis with an enormous clot. A little above the right ovary was found a tumor, from two and a half to three inches long, and one and a half in diameter, contained in the fallopian tube, whose unattached end was closed. This tumour contained the placenta and ovum, inclosing a fœtus of about six weeks, the whole much distorted. In the broad ligament of this side was found a net work of large veins, greatly distended, and having free communications with each other. In one of these veins was found the orifice from which the blood had escaped. There was found a large Graafian vesicle on the surface of the right ovary. The uterus was of the natural size, containing reddish mucus, but *no decidua*.

The author conceives, and we think with justice, that the varicose state of the vessels in the broad ligament, was anterior to the passage of the ovum into the tube, but that the afflux of blood occasioned by its arrest there, increased the distension and caused the rupture. With regard to the natural size of the uterus, he gives us an explanation for which he is indebted to M. Guillemot, that "whenever extra-uterine fœtations are accompanied by hæmorrhage the uterus is found of a normal size, but when there has been no loss of blood, it is generally enlarged."

The absence of the membrana decidua he thinks owing to the continued discharge of blood, and very likely he is right. M. Ollivier adds several cases from authors, showing that a fatal hæmorrhage from enlarged vessels, on or near the ovaries, has been noticed before in women, who have previously had children.

Observations on Lithotrity in Children, by M. Segalas.—From the bad results attending the operation of lithotrity, performed some time

since on a child five years old, and from the almost general success of the lateral or high operation for lithotomy in infancy, M. Rognetta, as well as M. Dupuytren, had come to the decision that the former operation was inapplicable to very young patients.

M. Segalas seeks by facts to refute the dogmatism of this opinion. The facts are five:—the patients were one girl and four boys; the female three years old; the boys were, the first of three years, the second of eleven, the third of fifteen years. M. Segalas has practised the crushing of the stone successfully, and without any bad consequences following the operation. He has observed no cystitis, peritonitis, nor acites, which lithotritry seemed to have given rise to in the little patient of the Hotel Dieu. The little girl and the boys of three and fifteen were operated on with the three branched claw, the two others with the *brise-pierre*, by pressure and percussion.

The operation was terminated in one sitting, in the boy of three years old, and him aged twelve; in four and five sittings with the two other boys, and in ten with the girl. The history of four of these patients has been already published; that of the fifth is remarkable for the smallness of the *brise-pierre* that was used, the relative bulk of the calculus, and, above all, its hardness, and its composition of almost pure oxalate of lime.

In the first sitting in this case, the 9th of last February, having found the stone to be thirteen lines in diameter, and very resistant, M. Segalas wished to introduce a stronger instrument than the one he had hitherto used, the latter being two lines broad and a line and a half thick. The narrowness of the meatus urinarius would not allow the introduction of a larger one, so he was constrained to use the first one, though he feared frequently that it would break; however, a first division of the stone was effected by the aid of pressure and percussion combined.

The fragments were at length bruised in four sittings, in the space of five weeks. The symptoms of stone were dated as far back as eighteen months. The disease appeared to have been hereditary in this child. Two of his relations had been cut for stone at an early age; one of them died of the operation, the other is still alive, but has been affected for twenty years, with a recto-urethral fistula.

These five facts establish sufficiently that the method of bruising the stone is applicable in childhood, and as harmless at that period as lithotomy, once the stone is seized on.—*Revue Medicale*, August, 1834.

Wound of the Heart, the Patient surviving ten Days.—A robust young man, æt. 26, in a quarrel with his brother, received a stab of a knife from the latter, it penetrated the left side of the chest below the mamma. The instant he received the stab, a considerable gush of blood took place from the wound; the countenance became pale; cold sweat covered his forehead, after which he had several fainting fits. The physicians who soon after visited him, made the following report: paleness of the countenance; pulse weak, and occasionally

intermittent; slight oppression and difficulty of breathing; intense pain in the wound, from which trickled some drops of blood: the intellectual faculties free and unimpaired. The patient found himself getting better daily, until the morning of the tenth day, when he fell into a faint, during which he died. On examination after death, the wound was found to have penetrated the left ventricle of the heart, the knife had even struck the opposite wall of the ventricle. Death ensued from an effusion of blood into the cavity of the thorax. There had formed in the cavity of the wounded ventricle, a clot which had closed the wound of the heart, and prevented the discharge of blood, and it was owing to this latter circumstance that the patient survived so long.—*Rev. Medice*, July, 1834.

Admission of Air into the Veins during Operation.—CASE I. Mr. William Burrill, of Salem, aged sixty, was admitted into the Massachusetts General Hospital, on the 16th October, 1830. He had a cancerous affection of the left side of the face and neck, of the extent of three or four inches diameter. It was hard at the edges, of a livid red colour, ulcerated in the centre, very offensive, very painful, and had made an impression on the general health. The parotid gland, the submaxillary, the sublingual, and all the textures, excepting the bone, were involved in the complaint. The lower jaw was thought to be diseased, at first, but it afterwards appeared not to be so. In so bad a state of things, there seemed to be little hope of eradicating the disease, and the operation would not have been attempted, had not the patient solicited it.

Considering the extent of the disease; that important blood-vessels would be divided, namely, the facial and sublingual arteries, probably the temporal, and possibly the external carotid; it was thought best to secure the carotid trunk. An incision, for this purpose, was begun opposite the thyroid cartilage, and carried two inches downwards. The platysma muscle was divided, the edge of the mastoid exposed and dissected. Thus far, only a few drops of blood were discharged. The face of the sheath of the great vessels was a little uncovered, when a small effusion of venous blood appeared under the knife, and checked the operation. At that instant a very distinct sound was heard, like the passage of air through water. A few bubbles were seen in the venous blood, the flow of which was immediately arrested by applying a finger on the part. The patient exclaimed, "I am faint." On regarding his countenance, it was not pale, but livid, almost black, and the muscles agitated by a convulsive motion. The respiration became deep, laboured, and stertorous, like that of apoplexy. The pulse being examined at the wrist, was found distinct, but very slow. The wound not bleeding, and very little blood having been lost, the temporal artery was opened, and the blood flowed from it with great freedom. As it flowed, the respiration became more frequent and less laborious, the pulse at the wrist more natural. The leaden colour in the cheeks assumed a reddish tinge, and the alarming charac-

ter of the symptoms was evidently diminished. About twenty minutes elapsed during these changes. At the end of half an hour, it was thought safe to remove the patient to his bed, where he lay in a state of insensibility for two hours, at the expiration of which he awaked as from sleep, still breathing like an apoplectic. The night was passed without any accident, and on the following morning he was as well as usual, with the exception of a moderate soreness over the thorax, and a headach.

In seven days after the accident described above, the operation was performed without tying the carotid artery.

The diseased parts were surrounded in an elliptical incision, extending from the lobe of the ear to the upper part of the neck, and including the submaxillary, the sublingual and parotid glands, all of them in a morbid and disorganized state, and they were all entirely removed. The hæmorrhage was copious, but readily arrested, with the exception of that from a large vein, which, from its depth, under the jaw, could not be distinguished so as to admit the application of a ligature, and was, therefore, compressed by a sponge. The veins below the wound were compressed during this operation. The patient experienced a slight faintness, which soon passed off. He had no bad symptoms; and on the 10th of December, the wound being nearly healed, he requested his discharge, which was granted.

CASE II.—Nancy Bunker, of Trenton, of Maine, married, her age thirty-three. Three years since, she noticed a hardness in the right breast, which increased till it involved the whole gland in a tumour, very hard, moveable, yet connected with the pectoral muscle by a morbid adhesion. The nipple is drawn in. The axilla is occupied by a considerable tumour, of a globular form, and quite hard. An operation was performed on the 24th December, 1831.

The patient sat in a chair. The right arm was extended, raised above a horizontal line, in order to give tension to the skin, and permit access to the arm-pit, and was supported in this position by an assistant. The skin on the surface of the breast, with the diseased nipple, were included in an oval incision; the breast was dissected from the pectoral muscle, and left connected with the axillary glands while the extirpation of these glands was effected. As they adhered to the great axillary vessels, they were cautiously detached by dissection, and by insinuating the finger, where the cellular substance was loose, between the tumour and the great vein. This separation was nearly effected, only a slight connexion still existing at either extremity of the tumour. Proceeding to separate it, at the outer part of the axilla, a vein was divided, and a small quantity of venous blood discharged. Scarcely was this done, when the patient struggled, her complexion changed to a livid colour, and at the same instant the bubbling or clucking noise, which had not been noticed before, was heard, though indistinctly; but the place from which it issued was not visible, the surrounding skin and fat lying over it. On this, the axilla was immediately compressed. The patient became insensible, breathing as in apoplexy. The tumour was

at once separated. The posture of the patient was changed, and she was supported by those around. Some brandy was poured down the throat, and ammonia introduced into the nostrils. The pulse, however, became less distinct every instant. Cloths dipped in hot water were thrown over the extremities. Strong frictions were applied to the chest, and to all parts of the body. Considerable quantities of brandy were again poured down the throat. At this moment the livid colour of the cheeks gave place to a suffusion of vermilion red, and no glow in the cheek of a youthful beauty ever gave one so much pleasure as that flush. But the flush soon passed off; the lividness reappeared; the respiration became more feeble; pulse at the wrist scarcely perceptible; and, notwithstanding the redoubled applications of external heat and moisture, the extremities and the whole body cooled rapidly, and presently the respiration ceased.

As a last effort, the larynx was opened, and the inflation of the lungs by a bellows was put in operation in a speedy and perfect manner, imitating the movements of inspiration and expiration with great exactness, continuing at the same time the general application of heat and frictions to the whole surface. These measures were employed for about twenty minutes longer. At the end of this time, there was no remaining hope of the restoration of the patient to life. The friends being anxious to take advantage of a vessel then sailing for their home, the body was soon after removed, and no opportunity afforded for examination.—*Dr. Warren, in the Cyclopædia of Practical Medicine and Surgery, a Digest of Medical Literature, edited by Dr. Hays.*

Tubercles in the Uterus and Placenta in a Phthisical Patient.—

On examining the body of a woman who had died of phthisis in the seventh month of pregnancy; there were found, (besides the pulmonary tubercles), small crude tubercles on the external surface of the uterus under the peritoneum, and what is much more rare and more remarkable, eight or ten whitish tubercles, varying from the size of a pea to that of a hazel nut on the uterine surface of the placenta. The foetal surface of the same organ presented under the amnion small miliary tubercles. No organ of the fœtus presented any trace of tuberculous disease.—*Revue Medicale, July, 1834.*

Treatment of Aneurism.—We cannot terminate the present article without noticing a table attached to M. Lisfranc's thesis, (our analysis of which we have now completed), which at once shows immense literary research, and may serve as a foundation for several curious and useful deductions.

The table contains 242 cases of aneurism, and indicates, in parallel columns, the work in which the case is described; the surgeon treating; patient's name, age; artery affected, and species of aneurism; process employed; accidents; date of the ligature coming

away; and termination. It is subdivided into sections, according to the different methods employed.

I. II. and III. contain eighteen cases which were treated by refrigerants and Valsalva's method. In five cases treated by Valsalva's process there are four cures, (carotid and subclavian aneurisms); the remaining thirteen, treated by styptics, refrigerants, &c., give six failures, six cures, one uncertain.

IV. Compression between tumour and heart, thirteen cases; eight unsuccessful, five cured.

V. Compression on the tumour, five cases; one cure (aneurism by anastomosis of temporal artery).

VI. Compression on the whole limb, five cases: three cures, two failures.

VII. Compression without indication of the spot, twenty-four cases; cures eleven, failures thirteen.

VIII. Ligature after the old method, thirty-one cases; failures six, cures twenty-three, two doubtful.

IX. Anel's, or Hunter's method, 151 cases; failures forty-five, cures 106.

X. Brasdor's method, fourteen cases; four cures, ten failures.

XI. Torsion; *refoulement*, one case; cured without accident.—*Lancet*.

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PART I.
ORIGINAL COMMUNICATIONS.

ART. X.—*Illustrations in Midwifery, embracing chiefly the obscure Characters of Pregnancy, and the Signs which are supposed to denote the Extinction of Life in the Ovum.*
By J. T. INGLEBY, Lecturer on Midwifery at the Birmingham School of Medicine.

[Presented through Dr. Montgomery.]

THE subjects considered in this paper involve questions not less interesting than important, and consequently present the strongest claims for attentive examination. To the practitioner in midwifery a thorough knowledge of the many difficulties he may have to encounter, and a just appreciation of their various modifications, are so indispensably necessary, that they not only affect his own reputation, but the comfort and welfare of the community. But exclusive of moral obligations, parental solicitude and family considerations offer powerful incentives for acquiring a familiar acquaintance with these obscure subjects of practice. We are constantly called upon to pronounce upon the question of sup-

posed pregnancy, and not only does the due administration of public justice rest upon the accuracy of medical opinion, but frequently the moral character of the individual is determined by our decision. Again, as respects the foetus itself, the propriety of provoking uterine contraction by the ergot of rye,* or the discharge of the liquor amnii in the early and middle months of pregnancy, and the most eligible mode of effecting delivery in the latter months, whether by turning, the application of the forceps, or the perforator; are points which will be determined mainly by the fact of the child's vitality being extinct, or otherwise. Presupposing, however, attainments of no ordinary kind, the practitioner will sometimes have to regret that his judgment is quite unequal to the difficulties with which he has to contend. Of the existence of early pregnancy, the suppression of the menses, and vomiting, form prominent evidence. But the excited state of the nervous and sanguiferous systems, (explanatory of the marked sympathies which the uterus maintains both with near and distant parts,) the activity of the absorbent system, together with a slight descent of the uterus, afford us (collectively considered) merely presumptive evidence; and pregnancy may have existed some months, and yet not be denoted by a single obvious symptom. The pulse is more frequent than usual in the early weeks, and the urine sometimes deposits a milky sediment; but according to Dr. Maunsell, the blood is not necessarily buffed during any period of pregnancy. Included in the sympathies of pregnancy, are a capricious appetite, nausea, salivation, tooth-ache, wandering pains, fretfulness, &c., but these are not entitled to much attention. My object

* Very recently premature labour was induced in two cases, by the action of the ergot. It clearly originated uterine contraction. I prescribed it as an experiment in cases of projection of the sacrum, in preference to the evacuation of the liquor amnii. The child was born dead in one case, but living in the other. For similar cases, see Dr. F. H. Rainsbotham's Lecture, in Lond. Med. Gazette for 28th June, 1834, page 434.

is not to enter at large upon the signs of pregnancy in general,* but to comment briefly both on some of the supposed evidences of gestation, and the difficulty of forming a clear diagnosis, (especially when pregnancy is complicated with disease,) and also to advert to the signs which denote cessation of life in the embryo or foetus, pointing out also their absence, modification, uncertainty, and indeterminate nature. A physician accoucheur of high attainments (my friend Dr. Rigby) has divided these signs, first,† into those which appear antecedent to labour, and secondly, into such as appear during actual labour; a very practical division of the subject. The following classification will assist us in our proposed illustrations.

I. The effect of vomiting.

II. Sanguineous discharges.

III. The state of the breasts.

IV. Twin cases, and the expulsion of foreign bodies from the uterus.

V. Fætor of the discharges.

VI. Ascent of the uterus, and the state of the cervix uteri.

VII. State of the hypogastrium, and examination *per vaginam*.

VIII. Obliquity of the uterus.

IX. Size of the abdomen apparently stationary.

X. Dropsy of the abdomen.

XI. Diminution of the size in the abdomen.

XII. Irregularity in the form of the abdomen.

XIII. Fœtal movements.

XIV. Auscultation.

XV. State of the funis.

* I beg to refer the reader to the researches of Gooch, and the truly admirable Essay on these subjects by Dr. Montgomery, in the Cyclopædia of Practical Medicine.

† Lond. Med. Gazette for 23rd February, 1833, page 698.

XVI. Looseness of the cranial bones, puffiness of the scalp, desquamation of the cuticle, changes in the foetal presentation, and sundry constitutional symptoms.

THE EFFECTS OF VOMITING.

Vomiting, whether coeval with conception, or arising soon afterwards, usually ceases directly after quickening, but sometimes continues increasing in severity, harassing the patient up to the hour of labour. It is materially influenced by position, and may or may not be connected with organic disease.* These acts of vomiting are strongly in favour of the preservation of foetal existence, and I do not recollect an instance of their continuance, after vitality in the ovum had ceased. An attack of hæmorrhage, and other circumstances, may also suddenly arrest them. Some time ago I was attending a lady in her sixth or seventh week of pregnancy, on account of a most unmanageable form of vomiting, when suddenly a discharge of blood appeared (*per vaginam*) the forerunner of abortion. Although the expulsion of the ovum did not immediately take place, the vomiting ceased almost momentarily, a circumstance which cannot be wholly disconnected from the excellent effect which venesection exerts over the obstinate and protracted vomitings of pregnancy, though perhaps equally attributable under these circumstances to separation of the ovum.

SANGUINEOUS DISCHARGES.

A single attack of hæmorrhage may not only prove at once destructive to the embryo, but to the mother also,† even in the early weeks of pregnancy; or the foetus only may perish, and yet be retained in utero until the ninth month. On the other hand, a protracted hæmorrhage may not necessarily destroy the foetus, or terminate in abortion, notwithstanding the well known

* See the Author's Treatise on Uterine Hæmorrhage, page 41.

† See a case by the Author, published in the London Med. and Surg. Journal on 11th January, 1834, page 752.

tendency. As a striking illustration, a lady whom I recently attended in her confinement, had an unceasing hæmorrhage during the first three months of pregnancy, and yet abortion did not happen, and she was delivered at the full term of a living child.

It cannot be disputed, that a discharge possessing the characters of healthy menstrual fluid has now and then appeared, periodically during the first two or three months of gestation, if not during its whole term, and without exerting any apparent influence over it.

Menstruation, which occurs subsequent to conception, is opposed to the ordinary laws of nature, but the influence of this function in *preparing* the uterus for conception, is very marked. In the case of a woman who has borne nine children, and nursed each child until the recurrence of pregnancy, conception has uniformly followed the first return of menstruation, so that between each successive impregnation, the discharge appeared once only. It is true that some women have become pregnant during lactation, even many times in succession, in whom menstruation has not intervened, but such cases are very unfrequent. Amenorrhœa, when preceded by a bad state of the general health, must be received as very equivocal evidence of pregnancy.

STATE OF THE BREASTS.

After conception has taken place, the glandular part of the breast sensibly increases, and acquires a degree of firmness very unlike a mere fatty deposition; the part becomes uneasy, blue veins which traverse the surface are rendered unusually distinct, and the nipple is prominent, but the altered state of the areola forms the grand characteristic. In place of the rosy hue, the circle surrounding the nipple acquires a yellow, or more frequently a deep brown or very dark colour, its diameter also increases, and the follicles within the circle enlarge, and yield moisture. This state of the nipple, according to the high authority of Dr. Montgomery in particular, is occasioned by pregnancy

only. As applicable to a *first* pregnancy, this statement may be so universally correct as not to admit of an exception, but when the colour of the integument around the nipple has been once modified by pregnancy and nursing, it is no longer, I think, a conclusive criterion. I have frequently noticed a tolerably well marked areola unaccompanied by pregnancy, and also an areola of a very imperfect character, during an advanced state of pregnancy. Little importance attaches to the mere fact of milk being secreted, but when this change follows the ordinary signs of conception, it affords strong but not infallible evidence of pregnancy. Nevertheless these changes, even collectively considered, are not peculiar to the healthy state of the ovum; hydatids and visceral diseases have been known to produce them. The secretory functions of the breast have been performed at unnatural ages, and altogether exclusive of parturition; and the circumstances by which they are provoked are sometimes very obscure. In the case of an unmarried lady of high moral character, an areola had formed, a serous discharge exuded from the nipple, and the abdomen had undergone an enlargement, so nearly resembling in its form the gravid uterus at the full term, that pregnancy was strongly suspected. Ultimately the enlargement gave way to medical treatment. Although a serous discharge from the nipples may arise from mere irritation of the uterus, it is usually connected with more or less enlargement of its substance. I subjoin a marked case of this kind.

A young woman of spare habit of body, declared that she had attained the tenth month of her pregnancy; the usual morning sickness was followed by a discharge of milky serum, which kept her linen constantly wet, and subsequently, by movements which distinctly simulated those of the fœtus, and such as she had experienced in her two preceding pregnancies. On examination (*per vaginam*) in place of an impregnated uterus, I detected a firm tumor, the size of a large egg, situated at the posterior and lateral parts of the neck and body of the uterus, and bulg-

ing into the rectum ; menstruation was regular, but as might be expected, excessive. The pulsations of the abdominal aorta were very strong, but she declared that these were not the movements which occasioned the deception. I could not determine their character.

It will usually be found that the enlargement of the mammæ, common both to pregnancy and diseases of the sexual system, will disappear, when unconnected with pregnancy, after the lapse of a few weeks, although the primary affection may continue progressively augmenting. The following are amongst the changes which commonly result from the extinction of life in the ovum : the areola loses a portion of its darkness, the follicles and nipples shrink, the nipples cease to yield a serous or milky discharge, and the mammæ suddenly diminish in bulk. Towards the close of an ordinary menstrual period, the congestion of the mammæ, which immediately precedes the act, begins to subside. In a hæmorrhage connected with pregnancy, this subsidence ought to be more strongly marked, but it is sometimes otherwise. In a very protracted case of flooding, which ended in abortion and death, not the slightest diminution in the size of the breasts could be detected. But occasionally we find that hæmorrhage is followed by a marked collapse of the breast, a change which is perfectly compatible with the life of the child. A few months ago, I was called into consultation, on the case of a lady who had nearly reached the full term of her first pregnancy, and who was the subject of a complete presentation of the placenta. The first attack of hæmorrhage occurred a fortnight previous to her delivery, and the second on the day preceding it. Neither of these effusions were dangerous in amount, but the drainings were considerable, and had produced a marked impression upon the system.* The glandular part of the breast, previously much increased in volume, was now remarkably soft and small, and a dead

* A very experienced accoucheur (Dr. Ramsbotham) has not found these drainings of much importance. It was otherwise in this instance.

weight, which fell to either side with the inclination of the body, was accompanied with a sense of coldness in the abdomen. The perceptible movements of the infant having ceased, life was presumed to be extinct. Under the skilful management of her surgeon, (Mr. Homfray, of Alcester,) the delivery was successfully accomplished, and notwithstanding that the placenta was necessarily perforated, and the child apparently still born, (for neither pulsation nor respiration could be perceived,) resuscitation was effected by the inflation of the lungs, and other appropriate means, but an hour elapsed before we considered respiration as satisfactorily established.*

TWIN CASES, AND THE EXPULSION OF FOREIGN BODIES FROM THE
UTERUS.

In twin cases it is well known that one of the foetuses may perish at an early period of gestation, and yet be retained *in utero* for an indefinite term. The period of its expulsion will, in a great measure, depend upon the state of its own textures. When the foetus has perished, the structures of the ovum rapidly decompose when exposed to atmospheric influence, although a high degree of decomposition is not incompatible with an *entire* state of the membranes. Whatever may be the condition of the dead foetus, the tenantry of the living one, even up to its maturity, may in no respect be affected. A few weeks ago, on examining a mature placenta, the expulsion of which was attended with severe hæmorrhage, a foetus of four or five months' growth, enclosed within the membranes, was found closely adherent to the uterine surface of the mass, and yet a full sized living child, in connexion with this placenta, had just been ex-

* In justice to a respected teacher of midwifery (Mr. Radford of Manchester) it should be remarked, that the preservation of the child's life is attributable, in a great measure, to his plan of seizing one foot in preference to both, thus leaving a larger circumference to distend the external part, and occasioning less delay in the delivery of the head.

pelled. It is singular that although the placenta consisted of one solid mass (not two placentaë connected by membrane) one half of the mass, and the small fœtus attached to it, are reduced to a white substance, the line of demarcation between the dead and living portion of the placenta being very apparent. When abortion happens in the middle months of gestation, the long retention of the placenta is of frequent occurrence. On the expulsion of a twin, three, four, or five months old, enclosed in its own proper membranes and placenta, it is obvious, that the uterine orifice may promptly close, without exciting any suspicion of the presence of a second ovum; and if the woman be corpulent, the bulk of the uterus will not be easily determined. After the expiration of a given period, varying from a few hours to a few days, the uterus will probably expel the second ovum, and thus a charge of ignorance may be most unjustly and vexatiously preferred against the practitioner, a circumstance which I know to have occurred. In cases similar to the foregoing, a difficulty respecting the vitality of the fœtus is likely to occur. The same difficulty may arise on the expulsion of a large mole, or a diseased ovum from the uterus, whilst a fœtus, enclosed in its proper membranes, is still contained in its cavity. Of this complication, my own practice has furnished a striking example. After a long continued hæmorrhage, a diseased placenta (of the grape kind) was cast off, but without any apparent fœtus; the os uteri closed, and to the surprize of all parties, the patient was delivered in a few weeks afterwards of a mature child and secundines. This, and several similar instances already on record, denote the propriety of carefully ascertaining the state of the uterus whenever any large substance has quitted its cavity.

FŒTOR OF THE DISCHARGES.

As indicating the extinction of fœtal life, a fetid state of the discharges from the vagina is regarded as a prominent sign. Blood, when confined only for a short time within the uterus, and

exposed to atmospheric influence, soon becomes foetid. But besides this, a very high degree of foetor may be imparted to the natural mucous secretion, which lubricates the vagina. This peculiarity is compatible, not only with a healthy constitution, and a living child, but also with a natural state of the placenta and membranes, and therefore not very explicable. On ascertaining this secretion to be extremely fetid, (during an attendance upon a labour,) and the movements of an infant very evident, thinking there might be a plurality of children, and vitality extinct in one of them, I suggested to the husband of my patient the probability of such an event; my conjecture was ill founded, for the uterus contained a single child, and nothing unusual was detected, either in the secundines or liquor amnii. A very fetid state of the liquor amnii is quite compatible with vitality in the ovum.

ASCENT OF THE UTERUS, AND THE STATE OF THE OS AND CERVIX UTERI.

Although quickening usually takes place about the fourth month, sooner or later, the period when the uterus will ascend is quite uncertain. The ascent of the uterus will be regulated, partly by its own development, and partly by the size of the pelvis, whilst its progressive degrees of elevation will be influenced by the free or restrained state of the abdomen generally, both as respects its coverings and cavity. The uterus will ascend prematurely, both when the amount of liquor amnii is in excess, and when its cavity contains any material quantity of fluid, the product of disease. In a very complicated case of tumor in the abdomen, to which allusion will presently be made, not only was the fundus and body of the uterus occupied by a fluid substance, but the uterine portion of the neck had degenerated into a fibrous texture, which from its size and firmness, resembled a child's head. In the practice of my friend Mr. George Elkington, a woman was seized in the early weeks of pregnancy, with an active hæmorrhage from the uterus, and it

was supposed she would miscarry : presently, however, the case was rendered unusually obscure, by the vastly disproportionate increase of the abdomen. Instead of the uterus being found near the brim of the pelvis from the third to the fourth month, the abdomen had become both suddenly and generally distended by it. Vigorous contraction soon came on, and the expulsion of an immense quantity of hydatids, and a small fœtus was the result. Hydatids simulating natural pregnancy is not an unusual circumstance. I am not aware that the presence of hydatids can be distinguished with certainty from a healthy state of the ovum ; they produce a train of symptoms which characterize an early conception, and their evacuation from the uterus is generally attended with the usual evidences of abortion. A surgeon of high repute in this town assured me, that a young married lady who had experienced the usual symptoms of conception, was seized with a hæmorrhage, which terminated in the expulsion of a large but single hydatid. The present physiology of hydatids is not supported by this case.

In the following example, the premature elevation of the uterus appears to have been influenced by an unusually large pelvis. A lady whom I had delivered (at the full term) a few months previously, consulted me very recently on account of frequent and sudden attacks of uterine hæmorrhage of six weeks' duration. The catamenia ought to have appeared a fortnight prior to the hæmorrhage commencing. From this and other circumstances, not necessary to mention, she could not have passed the third month of gestation. On examination, I found the body of the uterus enlarged, and the summit of the fundus within an inch of the umbilicus ; expulsive pains shortly ensued, which terminated in the discharge of the liquor amnii, and a very small fœtus and placenta, apparently of about eleven or twelve weeks' growth. Again, the development of the uterus, although progressive, may be late, relative to the period of pregnancy. This retardation is sometimes connected with a diseased state of the ovum ; the embryo perishes

in the early weeks, but the placenta retaining a low degree of vitality, acquires a diseased organization, and an indefinite shape. Its expulsion may be delayed, even beyond the ordinary period of gestation.* From the fourth to the sixth month, *ballottement* of the uterus will afford very decisive information, but although we thus obtain an assurance that its cavity contains a child, we may remain in ignorance whether or not the child possesses vitality. The gravid uterus may remain within the pelvis as late as the sixth month ; a single example is annexed.

Mrs. T., ætat. 26, has been married about a year, and the last act of menstruation terminated in the first week in January, 1834. The non-recurrence of the catamenia was not followed by any of the early signs of pregnancy, but about the end of May, a peculiar fluttering sensation favoured the idea of pregnancy. The fluttering continued very sensibly increasing until the end of June, when it entirely ceased. Accustomed to menstruate with great regularity, no doubts were entertained respecting the existence of pregnancy ; until it was discovered that the abdomen had not at all increased in size. I was consequently desired to see her on the 10th of August.

There was neither vomiting, sickness, discharge, sense of weight, coldness nor pain ; the breasts were slightly enlarged, the superficial veins peculiarly distinct, and the areola but imperfectly formed ; the abdomen was in no respect enlarged. Notwithstanding the patient's spare habit, I could not feel any part of the uterus above the brim. On internal examination, I found the cavity of the pelvis occupied by a large tumor, resembling the head of a child, which had descended within nearly an inch of the vaginal orifice. The cervix uteri had very nearly disappeared, and the os internum was soft and slightly open. Although the *ballottement* of the uterus was quite impracticable, I felt certain of the fact of pregnancy, and

* Treatise on Hemorrhage, p. 104.

testified accordingly, but my opinion as to the vitality of the ovum was very guarded. Four days after this visit a slight hæmorrhage ensued, which was followed by pains, and the expulsion of a still-born and decomposed six months' child. The gravid uterus, instead of rising out of the pelvis at the fourth month, may lie completely beyond the os externum. In one instance of this kind, I succeeded both in returning the uterus within the pelvis, and retaining it there by means of a very large globular pessary, until the natural elevation had taken place.

Soon after conception takes place, the os uteri acquires a laxity of texture which it did not previously possess, but antecedent to the fifth month, the cervix undergoes but little change; about this time the development of the structures commence, but this development may be occasioned by an extraneous tumor, in degree almost as great as by the growth of the ovum. The vaginal portion of the cervix uteri varies also very greatly in length, and not only in different individuals and relatively, but also in the same persons absolutely. According to Boyer, this structure does not exceed four or five lines in length, according to Quain, from six to eight, whilst Cloquet makes it consist of twelve or fourteen lines. Not only may this great variation be noticed, but we also find the cervix normally wanting, the os uteri being very nearly on a level with that portion of the vagina which naturally embraces the cervix. Two or three years ago I was requested by a physician of this town to examine a woman, the inmate of a charitable institution, who was supposed to be pregnant. The abdomen was evenly distended by an apparently solid body, and it was suspected on very strong grounds that she had been attempting abortion by poison. I stated as the result of my investigation, that with the exception of the want of the cervix uteri, there was an absence of every symptom of pregnancy. She died the next day, and on p. m. examination, a congenital malformation was detected in the uterus, the body of the organ terminating in the os tinæ. The

abdominal distension was occasioned by an inordinately large accumulation of liquid fæces, the consequence of intestinal ulceration.

STATE OF THE HYPOGASTRIUM, AND EXAMINATION PER VAGINAM.

Inaccuracy in diagnosis is generally the result of our examination being made in a desultory manner, and in unfavourable positions of the body. For the purpose of examining the uterus above the pubis, (the bladder and rectum being previously evacuated,) the body should be supine, the head and shoulders being rather elevated, and the abdominal muscles relaxed. The hypogastric and iliac regions must be carefully explored, and if a hard body be felt, the fingers should be applied so as to ascertain if possible, its volume, form, consistency, mobility, and connexion with other organs.* Examination *per vaginam* may be conducted in the same position of the body, but it is sometimes advantageous to make this examination when the patient is erect, by which the size and weight of the uterus, if not its amount of elevation, will be more correctly determined. It may be advantageous to conduct the super-pubic examination in the same posture, making the requisite allowance for the comparatively relaxed state of the abdominal parietes in women having previously borne children. Percussion of the abdomen, when properly performed, is strikingly advantageous in determining the nature of abdominal enlargements, whether occasioned by a solid body, the evolution of gas, an excess of liquor amnii, or other fluid depositions. In pregnancy the fundus uteri will not be felt above the pubes until the end of the third month, and there is no *visible* increase of the abdomen before this period, but afterwards the enlargement will be progressive. When the centre of the hypogastrium is rendered prominent, and even (varying a little in these respects with the motions of the fœtus) moderately firm, or slightly elastic, the outline being defined,

* Boivin and Duges, translated by Heming, page 31.

and having the intestines on either side and above the tumor, such condition presents the strongest characters of pregnancy.

The contrast between the state of the hypogastric and epigastric region, from the fifth to the seventh month, especially when the patient stands erect, is very marked. There can be no difficulty in ascertaining whether the uterus *is* or is *not* enlarged, but whether the enlargement is occasioned by conception, may be less easily determined. Great stress has been laid upon the state of the umbilicus, which in early pregnancy may be actually more retracted than natural, on account of the uterus being more or less prolapsed. In advanced pregnancy, the umbilicus will either be on a level with the surrounding parts, or project beyond them. The appearance of the abdomen, notwithstanding the elevation of the umbilicus, may greatly deceive us. It would appear improbable that a distended state of the abdomen, from visceral enlargement, should be confounded with the gravid uterus; but it must be recollected, that the shape of the abdomen may in no respect differ from a state of advanced pregnancy, and the patient may also experience the constitutional evidences of that state of the system.

CASE.—Some years ago I opened the body of an unmarried and middle aged woman, who had been pronounced to be in a state of pregnancy, but the enlargement was found to depend upon a diseased spleen, which weighed nine pounds.

CASE.—A surgeon of the highest respectability examined the body of a woman, who, on other authority, had been previously considered pregnant. The liver weighed nearly sixteen pounds, and had descended below the umbilicus. The bulk of the liver, in conjunction with an effusion of serum which occupied the pelvic cavity, gave the abdomen the appearance of pregnancy; the liver could only be detected in particular positions of the body.

CASE.—A woman was said to be pregnant under circumstances which strongly supported the opinion: she died under

an attack of severe hæmorrhage, and on examination, *post mortem*, the uterus was found distended with a large polypus, the size of a foetal cranium. A similar instance, which also terminated fatally, has lately been published in a French periodical. Assuming that a large polypus is confined within the body and fundus uteri, the solidity of the enlargement in connexion with its progress and symptoms, will sufficiently distinguish the case from pregnancy.

CASE.—I met two practitioners in consultation upon a case of a middle aged unmarried woman, whose abdomen had become very evenly and progressively distended, as if by the gravid uterus about the seventh month of gestation. The body of the uterus was distinctly enlarged, and from the *tout ensemble* of the case, the woman had very strong grounds for considering herself pregnant. Amenorrhœa followed sexual intercourse, and her health gradually declined, but whether the symptoms were sympathetic of pregnancy, or referrible to organic disease, was somewhat doubtful; medical testimony was rather in favour of the latter opinion. She died, and on examination, the enlargement was found to consist in a tuberculated condition of the peritoneum generally, and the uterine peritoneum in particular. But notwithstanding the evenness of the abdomen, the whole serous membrane was studded with tubercles, varying in size from mere granules, to a bulk equal to that of a large walnut.

Were it not superfluous, I could detail several instances of abdominal enlargement in middle aged females, from fatty deposition solely, more or less characteristic of pregnancy: milk was secreted in one instance. But in every case the abdomen was soft and yielding, and the umbilicus being surrounded by large and prominent masses of fat, was unusually depressed, and thus constituted a most satisfactory diagnosis.

Pregnancy has also been simulated by large collections of air in utero, either secreted by the lining membrane, or what is more probable, generated by the decomposition of a clot of blood,

or the ovum itself, and confined within the uterine cavity by mucus closing the neck of the organ. An interesting case of this nature occurring in the virgin state, has recently been placed on record.* Pregnancy and the enlarged ovary are not unfrequently combined: in its progressive stages of elevation, the diseased growth will probably be in advance of the gravid uterus, it was so at least in a very striking example; a circumstance by no means inconsistent with its descent in the latter weeks of gestation beyond the presenting part of the child, for this has frequently happened, and proved an obstacle to the progress of labour. A tumor or tumors of a fibrous character, developed between the proper tissue of the uterus and its peritoneal investment, may or may not when emerging with the products of conception out of the pelvis, take precedence of the ovum in its elevation, for this will be regulated not only by the size of the tumor, but by its mobility, points of attachment, and if it possesses a stem, by its length. When moderate in size, and embedded within the uterine parenchyma, the tumor may remain for a long period in a state of inactivity, and it is only when roused by the extraordinary influx of blood, and the energies which accompany gestation, that its presence is suspected. In common with the disease of the ovary, its origin, although apparently coeval with gestation, is not actually so, its pre-existence can scarcely be doubted. The uterus may be either generally or partially enlarged by fibrous growths; when general, the figure of the organ may intimately resemble the gravid uterus in the early and middle months, and whilst any part of the tumor remains within the true pelvis, the patient will be exposed to all the inconveniences of a heavy body, and occasional attacks of pain, both from its pressure on the nerves, and a sub-acute inflammation of its tissues, but a very general enlargement of this nature, seems incompatible with the natural course of pregnancy; abortion would almost certainly ensue. When the dis-

* See *Lancet* for 31st May, 1834, p. 355.

ease and the product of conception pass into the abdomen, the inconvenience will in a great measure cease, but perhaps only for a time, for the tumor may be acquiring a progressive increase, and should the labour prove severe or be protracted, inflammation will attack its structures, and in all probability extend to the general peritoneum. Much will depend upon the relative situation of the tumor; when it is attached to the lower half of the cervix uteri, this danger will be considerable, although a very large sized tumor may be embedded within the structures of the fundus, and yet offer no kind of resistance to the progress either of gestation or labour. But there is still ground for apprehension: the violent and long continued pressure of the abdominal muscles in the expulsion of the child and secundines, the subsequent contraction of the uterus itself, and the changes in the puerperal state, may provoke an inflammation which the most energetic treatment shall not overcome.

A case in point, and one of the most perplexing which has at present come before me, occurred in a lady with symptoms of pregnancy, in whom a large, irregular, and very prominent tumor lay on the right side near the ilium. This tumor was intimately connected with a second, which rested in the recto-vaginal septum, and filled the vagina almost to the outlet, like a child's head. I carried this second tumor above the brim, and the hypogastrium was then greatly distended, two thirds of it being occupied by a tumor of a very dense structure, in connexion with a softer structure situated just above and over the symphysis pubis. On examination *per vaginam*, this substance intimately resembled a child's head. The tumors were continuous with each other, and excepting a marked difference in their form and consistence, there was no line of demarcation. With the advance of gestation, the hard tumor was forced underneath the left hypochondrium, the abdomen elsewhere being distended by the gravid uterus. Delivery took place at the ninth month, and the patient fell a sacrifice to peritoneal inflammation on the sixth day. On examination, *post mortem*, the hard tumor was found to be composed of the fundus uteri, which had degenera-

ted into a very large fibro-cartilaginous substance. The child had been contained in the body and neck of the womb, which were nearly healthy,* and must have undergone a most unusual degree of distension, but without any apparent attenuation of their tissues. In a case somewhat resembling this, it appeared that three large cartilaginous tumors "prevented the dilatation of the fundus uteri in the last months of pregnancy, and the fœtus was retained only by the excessive enlargement and thinning of the cervix of the viscus."†

The uterus may be greatly enlarged by a polypus, and the enormous size which these bodies attain is very remarkable. One of the specimens in my possession cannot weigh less than four pounds. In another specimen the uterus, together with the polypus, weigh three pounds and a quarter. In length the uterus measures seven inches and three quarters, and the polypus twenty-two inches. It is uncommon for the polypus, when quitting the uterus, to excite expulsive pains, although this circumstance characterized the case published by Dr. Brown,‡ and occurred also in a remarkable degree to a patient of Dr. Montgomery's. The presence of a polypus in utero may neither prevent conception, nor interfere with the course of pregnancy. The polypus and the ovum will undergo a simultaneous increase, and it is not improbable that the changes coincident upon conception, will terminate the hæmorrhages so common in cases of polypi. Circumstances having reference both to the structure and site of the polypus may occur to dissever its connexion with the uterus, at the time of parturition. In a case attended by Mr. Hazelhurst, a very respectable surgeon in Shropshire, the polypus was forced through the os externum, followed by the child. Inversion of the uterus would appear to have been prevented in consequence of the body of the child remaining within

* On account of its many peculiarities, this case will be published in due course.

† Heming's Translation of M. Boivin and M. Duges' Treatise, p. 184.

‡ See Dub. Jour. of Med. and Chem. Science for September, 1834.

its cavity, and the regularity of the contractions actually going on at the moment.

OBLIQUITY OF THE UTERUS.

The uterus may lose its perpendicular direction either immediately on quitting the pelvis, or at any period after it has passed the brim. Uterine obliquity seems referrible to three causes :

1st. To deformity of the pelvis and spinal column. In a most deplorable case of Cæsarean operation to which I was called, the long axis of the gravid uterus (inclined to the left side) was from before backward, the form of the tumor being nearly perpendicular ; with difficulty the child was resuscitated ; but the mother died in a few days. On examination, *post mortem*, it was found that the uterus had been confined to a space between the sacrum and the superior lumbar vertebræ, and the great laxity of the abdominal coverings permitted the free development of the uterus in the direction just mentioned.

2nd. To distended states of the colon. This I conclude constitutes the ordinary form of obliquity described by authors.

3rd. To relaxation of the abdominal coverings. Obliquity is rarely noticed in first pregnancies, on account of the resisting state of the abdomen. This form of obliquity rarely takes place before the seventh or eighth month, and its nature cannot be then misunderstood, but when it occurs about the fourth month, and is not associated with marked symptoms of pregnancy, its true character may be greatly obscured, as in the annexed example.

Mrs. H., a stout woman, but of leucophlegmatic temperament, pale, and of lax fibre, the mother of several children, was seized with hæmorrhage about the end of November, or the beginning of December : three weeks previous to this, (being a week before the expected menstrual period,) she experienced a scanty return of menstruation, which soon disappeared. Assuming conception to have then happened, she could not have

passed the seventh week of gestation. As the hæmorrhage and the subsequent drainings continued, I was requested to see her early in January. To restrain the discharge, or produce an efficient contraction, the usual means, including the ergot, and on one occasion, the plug, were employed as circumstances appeared to demand. There were no satisfactory signs of pregnancy: the breasts remained unchanged during the whole period. [About a fortnight prior to delivery, she directed my attention to a hard and round tumor situated on the left side, close to the ilium, where it constantly remained. It was slightly moveable, and not unlike a moderate sized foetal head. The tumor, which was rather tender to the touch, was supposed by the patient to possess an indistinct pulsation, but this could not be detected either by means of the stethoscope or the hand, though frequently employed for the purpose. The pulse was rapid and sharp, the feet and face œdematous, pain in the abdomen unceasing, and the countenance denoted much distress. Examinations *per vaginam* were frequently made, but the os uteri had not undergone any change, possessing the form and figure common to women having had many children, and obstinately resisted the introduction of the end of the finger. On the 20th January, a gentleman (whose surgical judgment is deservedly high) made a very patient examination of the case, and was disposed to think that she was not pregnant, and that the tumor possessed a fungoid character, but having a connexion with the uterus.

Early in the morning of the 30th January, regular contractions like labour pains ensued, which brought the tumor into the centre of the hypogastrium, and began to dilate the os uteri. After some hours of pain I was enabled to feel the membranes and the child's head above them, and also a portion of placenta, and as the hæmorrhage was returning, I instantly ruptured the membranes; but the pulse, which had been excessively feeble throughout the night, now became imperceptible, notwithstanding that the pains continued very powerful,

with very short intervals of ease. After many strong and bearing pains, the head slipped out of the uterus, and was instantly expelled. An hæmorrhage rendered it necessary to remove the placenta; this I accomplished by reaching a detached portion of it which had now somewhat descended; this part which had been long separated, was very yellow in colour. A recurrence of hæmorrhage led me instantly to plug the vagina, whilst pressure was made over the uterus, which was very firmly contracted. These, with the application of heat to the cardia, a low position of the head, and a dose of opium with brandy and ammonia, were promptly enforced, but notwithstanding all the means that were devised, (and in these I was kindly assisted by my friend Mr. Wickenden, and subsequently Mr. Chester,) the pulse at the wrist did not return, the respiration became hurried, and before I could obtain the transfusion apparatus, insensibility and slight convulsions had taken place, which shortly ended in death. The child appeared to have nearly reached the fifth month, but from the earliest time of her reckoning, she could not have passed the sixteenth week.

Reflections on this Case.—Death occurring at these early periods, is so very unusual, as by many to be scarcely contemplated. In my treatise on Uterine Hæmorrhage, I have adduced the authority of Baudelocque in justification of the rupture of the membranes after the third month, in hæmorrhages which threaten the destruction of life. But it is there presupposed that the evidences of pregnancy shall be clearly marked. How then are we to act under circumstances of unusual obscurity, as in the present case? Considering the situation of the tumor, and the absence of all the ordinary signs of pregnancy, this question arises: is it justifiable, merely on account of hæmorrhage, to dilate the neck of the uterus with the finger, (or perhaps the information could be obtained by passing a female catheter,) with a view of determining the state of the uterus, puncturing the membranes, and obtaining contraction in degree adequate to the evacuation of its contents? That we are justified in pursuing this

course, I am now firmly persuaded. It is not essential that we recognize the symptoms of pregnancy, for these are often most obscure, and as respects the uterus, we must recollect that in its ascent it may assume an oblique course. In this particular instance, the obliquity of the tumor was such as occasioned a fatal deception as to its real nature. Whether, then, the signs of pregnancy are conclusive, or of a doubtful character, provided an hæmorrhage is protracted, and dangerous to life, the propriety of passing the hand into the vagina, and dilating the uterine orifice, with the view of ascertaining the state of the cavity, must, I think, be admitted as a rule of practice. The previous application of belladonna might possibly be useful. With respect to the introduction of the hand in utero, although we cannot be regulated solely by the period of gestation, since the amount of uterine development, and the state of the vagina will vary very materially in different persons, still, as a general rule, the operation antecedent to the sixth month, if at all practicable, is fraught with great danger.* The case just described, as well as other equally lamentable issues, teach us that very violent contractions may produce exhaustion in a previously impaired habit, without loss of blood; for many hours before death there

* The question of manual interference at early periods of pregnancy, is ably treated by Mr. Wainwright, in his communication published in the third number of the Liverpool Med. Journal. The paper demands a dispassionate examination: the main object of it is, to recommend, in obstinate cases of abortion, manual assistance almost as a rule of practice, rather than as an exception to the rule. It is proposed to gently dilate the os uteri, (when requisite,) and by means of one or more fingers passed within the uterus, to move the ovum from side to side, and draw it forwards in order to obtain its removal. I have several times adopted this plan, but have more frequently failed than succeeded. One great objection applies to it, namely, the risk we incur of bringing away only a part of the ovum, and by the firm closure of the os uteri upon the remainder, retarding its ultimate expulsion. I cordially agree with the Author in advocating the removal of the placenta, when it is retained about the fourth month: twice within the last ten days I succeeded admirably by means of two fingers and counter pressure.

was no hæmorrhage whatever, although the exhaustion kept increasing with the increase of pain. We learn, also, that exhaustion, and a full contraction of the uterus, are so perfectly compatible, that the contraction may arise as an expiring effort of nature, a circumstance denoting the independence of the involuntary powers compared with those which obey the will. But to proceed; in advanced pregnancy the uterine tumor has commonly a trifling inclination to either side, but in degree too inconsiderable to constitute obliquity. Obliquity may also be occasioned by ovarian, or other morbid enlargements within the abdomen: a subject most interesting, but too complex, to admit of a detailed discussion here.

THE SIZE OF THE ABDOMEN STATIONARY, OR OTHERWISE DISPROPORTIONATELY SMALL, TO THE PERIOD OF GESTATION.

The abdomen may attain a degree of enlargement which shall correspond with a given period of pregnancy, and from this period undergo no perceptible increase, notwithstanding the foetus is living.

This position is here distinctly shewn. A woman, four months pregnant, and who had quickened about a week, was suddenly seized during the night, with a copious discharge of the liquor amnii, which recurred frequently in drainings and occasional gushings, attended with pain, and followed, at times, by hæmorrhage. These discharges continued without intermission till within a few days of her delivery, which occurred shortly after the seventh month. During the three intervening months, the abdomen did not visibly enlarge, and although the movements of the foetus were not felt after the first appearance of discharge, it was born living, but very feeble. From the sudden arrest of size, the friends of the woman were incredulous as to the existence of pregnancy. Under these and similar circumstances, as already observed, the neck of the uterus will not shorten, or more correctly speaking, not develope its structures, until an unusually late period of gestation.

DROPSY.

The evidences of gestation have often been rendered obscure by effusions both of the serous and aqueous kind. Pregnancy, and the disease termed ovarian dropsy, frequently occur in combination, a circumstance by no means surprising, since the general health is seldom affected so long as the ovarium is not very bulky. When the diseased structure has attained a considerable bulk, and is combined with pregnancy, the uterus can scarcely occupy the centre of the abdomen. The excitement of pregnancy may also give the disease a malignity of character which it did not previously possess.* In simple ovarian dropsy, the fluctuation, though obscure, will be perceptible, but when a scirrhus and dropsical state of the ovarium occur together, and the fluid is contained in many compartments, the diagnosis will be difficult. An innocent woman was very strongly suspected of being pregnant on account of this very peculiarity: the abdomen strikingly resembled the gravid uterus.

It is true that as the dropsy progresses, the fluid will ultimately be contained in one or two cavities, and the difficulty no longer exist. All hydropic effusions, whether primarily dependant upon pregnancy or not, are greatly promoted by gestation, and relieved, if not removed, by delivery. A combination of pregnancy and dropsy may occasion very distressing symptoms, and demand the operation of paracentesis, but tapping should, if possible, be avoided during pregnancy, both on account of the rapid re-production of the fluid, and the liability of the secreting surface in encysted dropsy to take on acute inflammation. A woman who lately died in this town, and was the subject of hydrops ovarii in union with pregnancy, was tapped by my friend Mr. F. Dukes, both during gestation and subse-

* In a case published in Part xv., page 231, of the *Cyclopædia of Practical Medicine*, severe symptoms of malignant ovarian disease commenced in the fourth month of gestation, and proved fatal a few days after delivery.

quently. She appeared to be perfectly cured. With the recurrence of pregnancy, the dropsy returned with such increased activity, that it became indispensably necessary to tap several times during the course of gestation, but such was the progress of the disease, that she did not long survive delivery.* It need scarcely be observed, that the utmost care must be exercised when using the trochar in all cases in which this combination is either suspected, or known to exist. When the vagina is occupied by the ovarian cyst, tapping may be necessary, to prevent the bursting of the sac during labour, an event which recently happened. On one occasion I punctured the ovarium *per vaginam*, and drew off four gallons of gelatinous secretion. The union of pregnancy with ascites is by no means frequent, the general health being too much impaired by organic lesion, (when dropsy pre-exists,) to admit of conception taking place. But the hydropic affection may depend altogether upon the excitement which attends the early and middle months of pregnancy, the system returning to its healthy state directly after delivery, or even antecedent to that event, under suitable treatment. It may be wholly impracticable to detect an early state of pregnancy, when associated with a pre-existing dropsy of the abdomen. A woman affected with ascites, who declared herself in a state of pregnancy, was tapped by a most intelligent surgeon of this place twice during gestation, viz., at the fourth month, and again at the seventh, and although eight gallons of fluid was withdrawn on the first operation, this gentleman could not fully satisfy himself, at the moment, as to the size of the uterus, but he clearly ascertained its actual condition on the occasion of the second tapping. The patient went her full time, and it is an interesting fact, that the reproduction of the dropsical effusion was nearly as rapid during lactation as during pregnancy. Dropsy of the amnion is a common disease of pregnancy. When

* This subject is considered in a communication by the Author of this paper to the Midland Medical Reporter, No. vii. vol. ii. page 50.

the amount of fluid is great, and the uterine walls are attenuated, the fluctuation will be very perceptible, and as early as the fifth or sixth month, the abdomen will have acquired the form of advanced pregnancy. Usually it is exceedingly tight, flatulent, and even painful; the respiration is impeded, and the sensations in general are far more uneasy than is common to the full term. The diagnosis will be embarrassing in proportion to the excess of the fluid. Percussion of the abdomen and vaginal examination must be made simultaneously, two fingers being placed upon the uterine portion of the cervix, whilst the hand is upon the abdomen, to facilitate the rebounding of the fluid.

Auscultation will seldom afford us conclusive information. A connexion has been described between general dropsy and dropsy of the ovum, but I think the coincidence merely accidental; indeed the latter effusion is usually occasioned by a diseased state of the ovum, and is purely local, whilst the former effusion does not necessarily implicate the product of conception. In proof of this, I have elsewhere alluded to the delivery of a woman with twins at a time when she was severely affected with ascites and general dropsy, and yet the amount of liquor amnii was very small. Had it been otherwise, premature labour would probably have ensued. It cannot be doubted, however, that not only amniotic dropsy, but ascitic and anasarcaous effusions have been known to occur together in combination with pregnancy. In these several complications, our opinion will partly be formed by the history of each case, but in the latter months, principally by the state of the body and neck of the womb.

DIMINUTION IN THE SIZE OF THE ABDOMEN.

This change is peculiarly striking when foetal life becomes extinct, although the ovum may be retained in utero until the full term is expired.

A woman expressed her conviction that she was in the third month of pregnancy. Soon after this time, although she lost

every symptom of pregnancy, amenorrhœa excepted, she persisted in asserting its existence. At the ninth month labour came on, which terminated in the expulsion of an apparently three months' fœtus (not decomposed) and a diseased placenta. Not only, however, does the abdomen diminish in bulk when the fœtus is deprived of life, and the blood is in a great measure diverted from the uterus, but also when the vitality of the ovum is unimpaired, and the vessels of the uterus are undergoing a progressive increase. A collection of flatus in the intestines is an early effect of conception. It disappears after a short time, and the diminished size of the abdomen has furnished grounds for doubting the existence of pregnancy. But although the abdomen may have become absolutely smaller, the uterus is relatively larger. About a year ago I was consulted by a woman of rather corpulent habit, then in her fifth month of pregnancy, and suffering severely from constant vomiting. From the circumstance of the abdomen being smaller than it was the preceding month, she could not be convinced of the fact of her pregnancy. She scarcely ever felt the movements of the child, and remained sceptical almost up to the hour of labour.—The child was living. The diminution might have been promoted by the active absorption of the adipose matter of the abdomen, in common with other parts of the body. In early pregnancy, the amount of liquor amnii, viewed in reference to the size of the fœtus, is disproportionately large, although in strict accordance with nature. In some instances, however, the excess of fluid in connexion with the ovum is most unnatural. It may be contained altogether within the amnion, or a fluid resembling the amniotic may collect within a membrane, exterior to the amnion, and supposed to be the source of those aqueous discharges which occasionally take place during pregnancy, but without interrupting its course. A form of dropsy has been described, in which the fluid is said to collect in the early months between the uterus and the membranes, but the rationale of these discharges is imperfectly understood. In dropsy of the amnion, the spon-

taneous discharge of the fluid may be repeatedly followed by a fresh accumulation, each collection producing the same amount of distension. In an example already adduced, the discharge continued three months. In another, which happened about the full term, a copious discharge of fluid was followed by a remarkable diminution of the abdomen, but in three days the distension had returned in degree as great as before : delivery shortly took place. Two years ago a medical friend conferred with me respecting his wife, then about eight weeks pregnant, who had experienced a sudden gush, of about three ounces of fluid *per vaginam*, resembling liquor amnii. He had been in hourly expectation of abortion, but gestation went on to the full term. It is singular that this lady, who is now from four to five months pregnant, had a similar seizure three weeks ago : she was awake during the night by the sudden discharge of at least eight ounces of limpid fluid, followed by a slight discharge of blood, which continued more or less during several days. Instead, however, of the abdomen being rendered smaller, it immediately became very sensibly larger, a circumstance owing to the uterus having at this moment quitted the pelvis. A case is narrated in the *Archives Générales de Médecine*, in which a pouch and ten pounds of water were expelled, and yet pregnancy went on to its full term. I have elsewhere recorded the particulars of the case of a lady in which a quantity of liquor amnii was discharged at the sixth month, and renewed every second or third day to the ninth month, the quantity averaging from a pint to a quart at each evacuation. The lady arrived at the full term of gestation, and after delivery, I discovered that the fluid had escaped through a circular aperture at the edge of the membranes, which had no connexion with the aperture made by the child.* The case is quoted in the *Archives Générales*,† and in imitation of this sponta-

* Treatise on Uterine Hæmorrhage, p. 29.

† *Archives Générales de Médecine*, Mai, 1834. De l'Hydropisie de l'Uterus, par MM. Gabriel et Pelletan, suivie de réflexions, par M. Guillemot.

neous laceration in the membranes, and the free issue repeatedly given to the liquor amnii, it is suggested, in cases where the distension is extreme, that a sound should be passed some distance above the os uteri, and the amnion punctured, to allow a certain quantity of water to escape, and thus by lessening distension, to prevent the premature contraction of the womb. It is improbable that success would attend such a measure. A practical deduction arises from the case last mentioned, viz., the importance of postponing the artificial puncture of the membranes as long a time as possible, and unless interference becomes essentially needful, deferring the case to nature, since premature labour will almost certainly ensue within a few hours when the membranes are punctured by art, but not so certainly when they rupture spontaneously. According to Puzos and Baudelocque, the compression exerted on the child is always fatal when nature relieves herself of this mass of fluid. It is a fact familiar to practitioners in midwifery, that a gush of fluid, probably the liquor chorii, now and then escapes before or during labour, and yet the amniotic cyst may be found entire; but the amount of fluid derived from this source can scarcely produce a sensible diminution of the abdomen.

IRREGULARITY IN THE FORM OF THE ABDOMEN.

We occasionally meet with a singular deviation from that uniformity in the shape of the uterine tumor which characterizes pregnancy: I allude to a partial and circumscribed elevation of the uterine tumor continuous with the general development, and neither affected by the position of the body, nor materially changed by pressure. It is not unlike a fibrous tumor developed under the uterine peritoneum, in advance of the surrounding parts, and has not, I think, been distinctly described by authors. This deception appears to have influenced the medical officers of a public institution in the case of a woman far advanced in pregnancy, and in whom the uterus chiefly occupied one side, and resembled two large steatomatous tumors. Al-

though I am not prepared to say that the appearance may not sometimes consist in an irregular development of the uterus, I incline to the opinion that it is occasioned by a faulty state of the abdominal parietes, resembling in this respect a partial vesico-vaginal hernia. It is, perhaps, occasioned by a separation of the recti muscles. In persons, at least, who have borne many children, the irregularity in the contraction of the muscles not unfrequently occasions a very pointed deformity of the abdominal coverings. In one such instance, after the birth of an unusually large child, I could easily have passed my hand through the aperture.

FOETAL MOVEMENTS.

The only incontestable evidence of the life of the foetus, is that which is afforded by its movements, and the most experienced men have, at times, confounded movements within the abdomen, which have had no connexion with pregnancy, with the movements of a living child. When the hand is placed over the gravid uterus, the sensation imparted to it by the movements of a living child varies from mere knuckle-like substances, felt weakly, or passing slowly from one portion of the uterus to another, to that peculiar ictus, or strong and sudden jerk, which is so characteristic of pregnancy.

Our diagnosis will be greatly facilitated by examining the abdomen in different positions of the body. In consequence of the tight and distended state of the abdomen at the close of pregnancy, no sensation may be imparted to the hand when the body is erect, but when reposing on the back, the movements may be felt most distinctly.

It is proved by daily experience, that foetal movements may be simulated by the action of muscles, the presence of hydatids, a slight ovarian enlargement, and other extraneous growths and morbid depositions, both solid and fluid. It is universally allowed, that large bodies of air moving in the intestines are frequently confounded with the movements of a foetus.

An involuntary movement of the muscles of the abdomen may be occasioned by any large body within its cavity, irritating the muscular fibre. These movements vary from a mere twitching, to a strong retraction, especially about the umbilicus. I examined a woman having an enlargement of the abdomen, chiefly from fat, in whom these muscular retractions were so marked, that several experienced females would not abandon their conviction of the fact of pregnancy, although the supposed period of gestation had expired upwards of ten weeks. I take it for granted, that twitchings of the recti muscles will generally be more or less painful. An apparently creeping movement, simulating the motions of a feeble infant, and occasioned by large bodies of gas in the intestines, may be distinguished by the hand, notwithstanding the intervention of a considerable substance between the intestines and the abdominal integuments. On one occasion I was greatly misled by these movements. I was desired to see a woman in whom a tumor had become developed on the left of the umbilicus, and on a line with it. It was slightly moveable, at times painful, but not on pressure; projecting considerably forward, sloping from its summit, and being about the size of the gravid uterus at the fifth month of pregnancy. Its texture appeared to be firmer in some parts than others, but this was owing to partial adhesions having formed between the general and uterine peritoneum. It afforded no sense of fluctuation, but on placing the hand over the surface of the tumor, a distinct crawling movement was traced in every part of it, but unaccompanied by the sudden impulse before alluded to. On internal examination, although the os uteri and the vaginal portion of the cervix were scarcely changed, the superior part of the cervix had degenerated into a tumor, quite as large as a child's head, exceeding it in firmness, but without the resilient property of an immature foetal skull. Repercussion could not be produced. The tumor continued enlarging, the sufferings of the patient progressively increased, and the result was fatal. On examination, *post*

mortem, it was found that the inferior part of the uterus had degenerated into a very thick and fibrous, or fibro-cartilaginous texture. The fundus and body of the organ were converted into a large sac, not thicker than an ox bladder, and contained three pints of dark, foetid, muco-purulent fluid, of the consistence of gruel. The mucous and fibrous structures of these parts of the uterus had nearly disappeared, and the peritoneal coat, though generally thickened, had ulcerated in one spot, where, from its thinness, it burst during the examination, and allowed a part of the fluid to pass into the abdomen. The fluid was prevented during life from escaping into the vagina by a quantity of tenaceous mucous which lined the sides of the cervix uteri, as in ordinary pregnancy.* The crawling motion I have alluded to, was probably occasioned by strong peristaltic movements in the colon, felt through a fluid of moderate density, or otherwise, by the thick fluid in the uterine cavity changing its position when the hand was placed over its attenuated surface. It is worthy of notice, that some months before I saw the case, the patient had strong symptoms of pregnancy, including very sensible movements resembling those of a foetus, when presently a large quantity of thin fluid was suddenly discharged *per vaginam*, and from this moment her own conviction of pregnancy disappeared. She had suffered from repeated discharges of blood, together with portions of membrane resembling the mucous structure of the vagina. The movements of a child may be concealed by a large tumor in connexion with the gravid uterus. In an example of this kind, the sixth month of gestation had arrived before the existence of pregnancy could be ascertained; a very extensive disease of the fundus uteri delayed the elevation of these portions of the womb which contained the child, and restrained the foetal movements. Aortal pulsations cannot be well confounded with the movements of a

* The *post mortem* examination was made by my friend Mr. J. M. Coley of Bridgnorth, who kindly furnished me with a copy of his notes.

child. In a few cases the movements of a living child have not been felt at any period either of pregnancy or labour. This may depend upon an excess of liquor amnii, torpor of the uterus, excessive uterine action, and feebleness in the infant, especially from hæmorrhage. In great torpidity of the uterus, the sensation imparted by the movements of a small foetus will be distinguished but imperfectly during labour, more especially if the waters are discharged, and considerable pressure is exerted upon the head within the pelvis, and upon the other parts of the child enclosed in utero. The influence of medicine over the foetal movements must not be overlooked. In the case of a lady in whom the foetal movements were very painful, the hyoscyamus was administered with the effect of allaying the movements for nine or ten hours together, and this was noticed not once or twice only, but frequently, including a period of several weeks. The movements of the foetus may be almost paralyzed by the full and unremitting action of the ergot of rye. With a view of inducing premature labour in a case of pelvic deformity, the ergot was administered at short intervals during several days, by which the uterus and membranes were rendered constantly tense, and the patient no longer feeling the child move, considered it dead, and became anxious for the evacuation of the liquor amnii. Although I could not feel the child move, I distinctly heard its heart pulsate, and on the ergot being discontinued, the movements returned very sensibly, and the child was born living. I am very averse to administer this medicine, lest a dead child should be the consequence. Another source of deception consists in confounding inanimate with animate movements; an accidental change in the situation of a dead foetus, for example: a woman who was most anxious for a living child, persisted that she felt the child move at the beginning of her labour, and yet the cuticle was entirely detached, and decomposition far advanced.

AUSCULTATION.

Upon the subject of auscultation I have scarcely any thing to advance. Although far from an expert auscultator, I have very distinctly detected both the soufflet and the pulsation of the foetal heart by means of the stethoscope as well as the naked ear. But the soufflet is common to several diseases, and is therefore an uncertain evidence of pregnancy. This sound will be rendered obscure when the centre of the placenta corresponds with the centre of the fundus uteri on its posterior surface, and (as Doctor Rigby observes) will be scarcely perceptible when the placenta is attached to the uterine orifice. The pulsation of the foetal heart is of course conclusive of the presence of a living child within the abdomen. This sound is not distinctly heard before the fifth or sixth month, at least I have not been able to distinguish it at earlier periods; a circumstance referrible, perhaps, to my own inexperience in auscultation. The pulsation of the foetal heart may also be too feeble to be communicated to the ear. In the case of Cæsarean operation before mentioned, the foetal heart could not be heard to pulsate, notwithstanding a most minute examination by several practitioners. The patient persisted, however, that she felt the child move, and it was extracted alive. The waters had been evacuated a long time, and the pressure which the uterus made upon the body of the child, I conclude, rendered the pulsations of the heart too feeble to be distinguished.

STATE OF THE FUNIS.

If the funis has really ceased to pulsate, animation must be either suspended, or what is more probable, life absolutely extinct. The want of pulsation in the cord may be absolute or only apparent. It may be rendered merely feeble by the partial pressure of the child's head, or the general contractions of the uterus. I recollect an instance of funis presentation in which no pulsation whatever could be felt in the morning, and artifi-

cial delivery was, in consequence, abandoned ; and yet in the evening, the cord pulsed most distinctly, but the uterine action was then too great to allow version to be undertaken. When the cord is bulky, and deformed by gelatinous deposition, and the amount of prolapsion is very slight, a feeble pulsation is not readily distinguished. It is of the last importance that the examination be made with the utmost accuracy, since our practice will be materially regulated by the result.

LOOSENESS OF THE CRANIAL BONES ; PUFFINESS OF THE SCALP ;
DESQUAMATION OF THE CUTICLE ; CHANGES IN THE FŒTAL
PRESENTATION ; AND SUNDRY CONSTITUTIONAL SYMPTOMS.

Great reliance has been placed on a very loose state of the bones of the head, as an indication of the death of the fœtus, and it certainly constitutes one of the least equivocal of the signs enumerated by authors. But until near the close of pregnancy a mistake may arise, on account of a defective state of ossification. It is clear that the immature cranium may communicate to the finger a deceptive sensation. Other signs (mentioned by Dr. Rigby) which indicate the death of the child, and arise during labour, are the presence of emphysema, and want of tumefaction of the scalp in a vertex presentation, the absence of swelling and lividity when an arm protrudes, the want of pulsation in prolapsed states of the cord, a motionless state of the tongue on passing the finger into the mouth in a face presentation, and complete flaccidity of the sphincter ani when the breech presents. These signs are very valuable to a certain extent. Mere puffiness of the cranial coverings may be occasioned by the difficult transmission of the head through the pelvis, but an emphysematous condition of the scalp, when unattended by the tumefaction which is so commonly noticed in a first labour, is almost incompatible with the preservation of life ; and detachment of the cuticle can only occur when vitality has ceased. The arm of a living child will be swollen and livid when it is protruded through the vulva, and the uterine action

is at all powerful; the length of time it may remain in this condition after the circulation has ceased, and before decomposition has ensued, I am unable to determine. A motionless state of the tongue in face presentation may be occasioned by congestion, or temporary interruption to the circulation, but the flaccid state of the sphincter ani, according to my experience, is almost conclusive of the child's death. Included amongst the constitutional evidences which, on the part of the mother, denote the extinction of foetal life, and arise before labour, are frequent rigors, sallowness of the complexion, and several varieties of gastric disorder, but these are entitled to little reliance, and will be influenced mainly by the amount of individual susceptibility.

ART. XI.—*Observations on the Theoretical Constitution of the Ethers*. By ROBERT J. KANE, Esq.

IN a Memoir published January, 1833, in the Dublin Journal of Medical and Chemical Science, I entered briefly into the consideration of the probable constitution of the class of bodies termed ethers, and brought forward, as possessing at least sufficient probability to deserve examination, a theory which establishes a sort of parallelism of them, with the ammoniacal compounds.

Two years having elapsed since that theory was first made public, it is of consequence to ascertain how it has been affected by the additions to our knowledge made in the mean time. In chemistry, the truth or falsity of an hypothesis is generally capable of being determined by the accumulating evidence of a few years' researches; and if we apply this test of its conformity to reality, to the view of the nature of the ethers already alluded to, a circumstance, I believe, unprecedented occurs, that not only have the researches of organic chemistry made since 1832 tended to increase the probability of its truth, but that it has been reproduced some months since by two of the most illus-

trious chemists of the day, MM. Berzelius and Liebig. I say reproduced, not adopted, for neither makes any allusion in their memoirs to my prior publication, which I am sure they would have done had they any knowledge of its existence. Indeed the hypothesis is so effective in introducing harmony amongst a class of bodies otherwise presenting an appearance most confused and perplexing; so great a mass of evidence in its favour has latterly been obtained, that I am more surprised at the idea not having occurred to chemists before the appearance of my paper, than at its having been independantly, though subsequently, advanced by Liebig and Berzelius.

The memoir in which the theory was originally proposed, being a collection of short notices on various chemical subjects, and the theory not having received in it any very detailed illustrations, I shall in the present essay, first, present the evidence of my priority of publication, and then describe the nature of the proofs afforded by experiments in favour of the truth of the hypothesis advanced.

The dates of the memoirs are as follows :

1st. "On the Theory of the Ethers," published by me in the *Dublin Journal of Medical and Chemical Science*, January, 1833.

2nd. "Considerations Sur la Composition des Atomes Organiques," published by Berzelius in the eighth number of Poggendorff's *Annalen der Physik und Chemie* for 1833, and translated thence in the *Annales de Chimie* for September, 1833.

3rd. "Memoir sur la Constitution de l'Ether, et de ses Combinaisons," published by Liebig in the *Annales de Chimie* for February, 1834.

Liebig, however, cannot enter into the question of priority, as he adopts the theory from Berzelius, correcting him in one point, (the constitution of alcohol,) in which his view had differed from mine, and bringing the hypothesis to a perfect identity with that previously proposed by me. With Berzelius and

myself, the dates of publication are respectively the end of 1832 and middle of 1833, priority of date is consequently indisputable.

I may observe, also, that it admits of proof, that not only was my memoir published first, but that the idea had received its first development from me, at a time when Berzelius was engaged in bringing forward an hypothesis inconsistent with fact, which was published in the *Annales de Chimie*, November, 1832, and was the origin of a discussion between himself and Liebig, that terminated in its being abandoned in favour of the same mode of viewing these combinations that had previously occurred to me.

Having thus decided the question of priority, I feel it my duty to confess, that in the hands of those eminent chemists, the theory has obtained a development and accuracy of finish, which I was at the time totally unable to afford it. The vast additions to our knowledge of the composition of bodies of organic origin made since that period, have enabled them to bring forward as proofs of its connexion, many facts, then unknown or misunderstood, and in submitting to the judgment of the scientific world the present sketch, I shall take frequent opportunities of referring to their papers.

In explaining the principle upon which the theory is built, I shall make use of the words of my former paper ; they are as follows :

“ THEORY OF THE ETHERS.*

“ Dumas and Boullay had determined that in the ethers the carburetted hydrogen might be regarded as a base similar to ammonia ; they even contrasted in a table its properties to those of ammonia, and shewed that in all the important characteristics it was equally marked, and that but for the accidental circumstance of its insolubility in water, its alkaline nature should

* Dublin Journal of Medical and Chemical Science, vol. ii., p. 348.

have been long since recognized. Having devoted some attention to the ammonium theory of Berzelius, in which he regards an atom of hydrogen as converting the ammonia into a substance possessing many properties in common with the metals, I was induced to try whether the same simplicity of arrangement and classification which was given to the ammonia compounds by that hypothesis, could not be afforded to the different combinations of the ethers by the assumption of similar principles. Let us consider the base of the ethers as being, not olefient gas, but, as Thompson proposed, the isomeric liquid, whose formula is $(4\text{ c} + 4\text{ h})$; denote by the name of *etherium* the hypothetic body formed by its union with an atom of hydrogen, (as Berzelius terms the compound of ammonia + an atom of hydrogen, *ammonium*;) and see the expressions for the composition of some of the most interesting of these bodies.

Sulphuric ether (oxide of etherium) = $(4\text{ c} + 4\text{ h}) + \text{h} + \text{o}$.

Alcohol (hydrated oxide of etherium) = $(4\text{ c} + 4\text{ h}) + \text{h} + \text{o} + \text{h}$.

Muriatic ether (chloride of etherium) = $(4\text{ c} + 4\text{ h}) + (\text{h} + \text{Ch.})$

Hydriodic ether (iodide of etherium) = $(4\text{ c} + 4\text{ h}) + (\text{h} + \text{I.})$

Nitrous ether (hypo-nitrite of oxide of etherium) = $\therefore \text{N} + (4\text{ c} + 4\text{ h}) + (\text{h} + \text{o})$.

Oxalic ether (oxalate of oxide of etherium) = $\therefore + 2\text{ c} + (4\text{ c} + 4\text{ h}) + (\text{h} + \text{o}).^*$

“Any one conversant with the subject will at once see how simply the above view accounts for the varied decompositions

* In addition to the above, formulæ were given for the sulphovinic acid and oil of wine, differing from the results now considered accurate, and which are consequently omitted; the correct formulæ may be found in the table at the end of the present paper.

which occur in the production of these different bodies. I regret that the necessary brevity of this note prevents me from illustrating any instance in detail, for it would facilitate very much the comprehension of the subject. It is at once apparent that the different oxy-combinations of etherium have been well studied, and that it is very probable that corresponding chlorine, iodine, &c., compounds exist, a few of which, as muriatic, hydriodic, and hydrosulphocyanic ethers are already known. I had intended to enter into the development of this subject myself, but want of time prevented me; the only experiments I made on it are a few, which I shall subsequently relate. I now bring the subject forward in order to direct the attention of those persons who are interested in the progress of chemical philosophy to it, that its truth or falsity may be, if possible, proved."

A very simple transformation may render the nature of these formulæ more evident, and shall enable us to compare them more directly with some others, to be noticed hereafter.

Let $(4c + 5 +) = E$. and they become

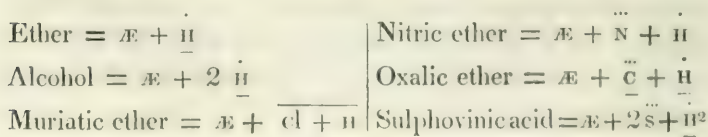
Ether,	Oxide of etherium, $E + O$	$= \overset{\cdot}{E}$
Alcohol, . . .	Hydrate of ether, $\overline{E + O} + \overline{H + O}$	$= \overset{\cdot}{E} \overset{\cdot}{H}$
Muriatic ether, .	Chloride of etherium, $E + Cl$	$= E\overset{\cdot}{Cl}$
Oxalic ether, . .	Oxalate of etherium, $\overline{E + O} + \overline{2C + 3O}$	$= \overset{\cdot}{E} \overset{\cdot}{C} \overset{\cdot}{C}$
Nitric ether, . .	Hypo-nitrite of etherium, $\overline{E + O} + \overline{N + 3O}$	$= \overset{\cdot}{E} \overset{\cdot}{N} \overset{\cdot}{O}$

After having thus shewn that bodies, which may be considered as the oxygen combinations of etherium, have been long known to chemists, I endeavoured to determine whether corresponding iodine combinations could be formed, and on putting the iodine of etherium in contact with some negative iodides, as the biniodides of mercury and of platina, I obtained results rendering the existence of such iodine salts very probable. The isolation also of the radical etherium, has been the object of numerous experiments, the manner of conducting which shall be

hereafter described, but which have not as yet led to any determinate result.

Having now explained the nature of the hypothesis, it is only necessary to mention in general terms the circumstances that led me to its adoption. Ammonia was known to be a base of great energy, but all the oxygen compounds of ammonia contain water, which Berzelius proposed to consider as converting the ammonia into an oxide of ammonium. Dumas and Boullay had pointed out the analogy in basic power between ammonia and carburetted hydrogen, and as all the oxygen combinations of carburetted hydrogen also contain water, the inference that such water might play the same part in them that Berzelius conceived it to perform in the oxyalts of ammonia, was at once obvious. From the fact, that the decomposition of alcohol in which ether is formed, is always affected by the action of bodies having a powerful affinity for water, that many bodies decomposing alcohol and water have no action on ether, and finally, that when water is presented to nascent ether, alcohol is again formed, as in the decomposition of sulphovinate of potash by dilute sulphuric acid, I inferred, that the essential difference of alcohol from ether consists in its containing water; thus, that if ether be, as I considered it, an oxide of a compound radical, alcohol is its hydrate.

We shall now examine the nature of the evidence which led Berzelius to the adoption of the same fundamental idea. In a memoir published in the *Annales de Chimie*, Nov., 1832. He considered the oil of wine as a salefiable base, to which he gave the name of ætherine; this body he supposed capable of uniting with water and with acids. Ether was its first hydrate, alcohol the second, and the different acid ethers constituted so many hydrated salts: thus ætherine being represented by Æ . we have,



On subsequently re-examining this view, and considering the fact, that the water of the phosphovinates or of the sulphovinates cannot be expelled by any temperature short of that sufficient to produce complete decomposition of the salt, he concluded, that the water was held by the same force of affinity, by which the elements of the etherine itself were retained, that it was not water of crystallization, but belonged as essentially to the constitution of the body, as the atom of water in the oxygen combinations of ammonia. In this manner was he led to the adoption of the principle, that ether is an oxide of a compound radical, yet he did not consider alcohol as the hydrate, but as an oxide of a compound radical of a composition different from that of the base of ether. His reasons are stated as follows.*

“The composition of sulphovinic acid, and of the ethero-sulphuric discovered by Magnus, differs in this, that one contains an atom more water than the other. Moreover, the ratio of the sulphuric acid to the etherine is the same in both acids. It is then evident, that this atom of water which in one of the salts is found combined with the sulphate of etherine, is not existant as water of crystallization, but in a totally different form, and this form cannot be any other than that of ether. It then naturally follows, that alcohol and ether are not hydrates of one and the same base, although their composition may be so represented. If so, the rational formulæ $\text{Æ} + \text{H}$ and $\text{Æ} + 2\text{H}$ cannot be exact, and alcohol and ether from the preceding considerations, become bodies of the nature of compound radicals, and should be represented, alcohol by $\overline{\text{C}} + \overline{\text{H}^3} + \text{O}$, and ether by $\overline{\text{C}^2} + \overline{\text{H}^5} + \text{O}$. The radical of alcohol being $\overline{\text{C}} + \overline{\text{H}^3}$ and that of ether $\overline{\text{C}^2} + \overline{\text{H}^5}$.”

I shall endeavour to place the curious fact upon which Berzelius thus comments in as clear a point of view as possible.

* *Annales de Chimie*, tom. liv. pag. 15.

The composition of sulphovinic acid is, 2 atoms sulphuric acid + 1 atom etherine + 2 atoms water, while the ethero-sulphuric acid consists of 2 atoms sulphuric acid + 1 of etherine + 1 of water. The former may, therefore, be considered as a bi-sulphate of alcohol; the latter as a bi-sulphate of ether. Now, as the properties of these bodies are totally different, the inference made by Berzelius is, that the second atom of water in the sulphovinic acid cannot be merely existing as water, but that they must be considered as salts of totally different bases. The opinion of Berzelius cannot be opposed but on well-grounded principles, yet I believe myself justified in holding his argument as insufficient, when we find bodies identical in composition, as well empirical as rational, possessing totally different properties, and in the very instance under examination we have the isethero-sulphuric acid, identical in nature with ethero-sulphuric, and yet as fully distinguished from it by its chemical and physical properties, as is the sulphovinic acid which contains an atom more of water.

The anomalous nature of the sulphovinic and ethero-sulphuric acids, weakened, as we have shewn, by the existence of so many isomeric bodies, has not appeared to me sufficient to invalidate the proofs already advanced, of alcohol being an hydrate of sulphuric ether, and in that respect the observations of Liebig coincide accurately with mine, for that philosopher, adopting the portion of Berzelius' theory, which considers ether and its combinations as having for base the compound radical $4\text{C} + 5\text{H}$, combats the idea of alcohol being the oxide of a distinct radical, and brings forward in proof of its being a mere hydrate of sulphuric ether, exactly the train of reasoning which had led me to the same conclusion, with the addition of such facts as the progress of science since the publication of my memoir had supplied him with.

In order to show the perfect identity between the opinions of Liebig, and those that I had originally announced, I shall make one or two extracts from his memoir: he says, "occupied

in writing the article *ether* for a dictionary of chemistry, I was induced to submit to an attentive examination all the facts advanced in favour of one or other of the theories proposed, and this examination led me to some experiments, which appeared to solve the question in a decisive and satisfactory manner. I have concluded that ether should be considered as the oxide of a compound radical composed of four atoms of carbon + five atoms of hydrogen, a view which corresponds with the theory developed by Berzelius.”*

After having examined with a care worthy of so distinguished a chemist, the nature of the evidences produced, he concludes,

A. That the only well-grounded theory, the one which is not contradicted by any fact, and which, on the contrary, explains in a satisfactory manner all the phenomena observed in these combinations, is that which regards ether as the first oxide of a radical composed of four atoms of carbon + five of hydrogen.

B. That alcohol should be considered not as an oxide of a peculiar radical, but as an hydrate of ether.

The theory has, therefore, now assumed a position in science very different indeed from that to which my advocacy alone could have entitled it. When announced by me it might be considered merely as one of the innumerable various points of view under which different minds may consider the same fact, but reproduced, with one exception, by Berzelius, adopted, that exception erased and alcohol restored to the very position in which I had originally placed it, by Liebig, who entitles it one of the best grounded hypotheses that chemistry possesses, it must now be adopted by all to whom the progress of chemistry as a science explaining the real constitution of bodies, is possessed of interest.

It remains to present a view of the principal ethereal combinations, which is done in the accompanying table. The

* Annales de Chimie, tom. lv. pag. 113.

first column contains the empirical names of the bodies, those by which they are called in common language. The second contains the empirical formulæ; that is, the actual ultimate composition given by analysis independant of any theoretic view. The third contains the names which I call rational, as expressing the nature of the bodies according to the hypothesis advocated in this paper. The fourth, the corresponding rational formulæ. The fifth, any observations respecting the bodies which may be necessary.

EMPIRICAL NAMES.	EMPIRICAL FORMULÆ.	RATIONAL NAMES.	RATIONAL FORMULÆ.	OBSERVATIONS.
Sweet oil of wine	$4c + 4h$	Etherine. Etherium	$4c + 5h = e$	Not yet isolated.
Sulphuric ether	$4c + 5h + o$	Protoxide of etherium	$e + o = e$	
Pyroxylic spirit	$4c + 5h + 2o$	Deutoxide of etherium	$e + 2o = e$	
Alcohol	$4c + 6h + 2o$	Hydrated oxide of etherium	$e + h$	
Sulphovinic acid	$4c + 6h + 2s + 8o$	1. Sulphate of hydrogen and etherium 2. Hydrated bi-sulphate of etherium	$(s + h) + (s + e)$ $h + (2s + e)$	The latter view is more consistent with the fact of the second atom of sulphuric acid uniting with a base without separation of water.
Phosphovinic acid	$4c + 6h + 2p + 7o$	1. Phosphate of hydrogen and etherium	$(p + 2e) + (p + 2h)$	Similar to the sulphovinic acid.
Ethionic acid } Is-ethionic acid }	$4c + 5h + 2s + 7o$	2. Hydrated bi-phosphate of etherium	$h + (p + e)$	Isomeric bodies lately discovered by Magnus.
Ethionate of baryta	$4c + 5h + 2s + 8o + ba$	Bi-sulphate of etherium	$2s + e$	
Nitric ether	$4c + 5h + 4o + n$	Sulphate of barium and etherium	$(s + e) + (s + ba)$	
Oxalic ether	$6c + 5h + 4o$	Hyponitrite of etherium	$e + n$	
Sugar	$12c + 11h + 11o$	Oxalate of etherium	$e + r$	$r = (2c + o)$.
Benzoic ether	$18c + 10h + 4o$	Hydrated bi-carbonate of etherium	$h + 2(2r + e)$	$r = (2c + o)$.
Acetic ether	$8c + 8h + 4o$	Benzoyle of etherium	$e + bz$	$bz = (14c + 5h + 2o)$
Acetal	$16c + 18h + 6o$	Acetate of etherium	$e + r$	$r = 4c + 3h$
Muriatic ether	$4c + 5h + cl$	Tribasic acetate of etherium	$3e + r$	
Chloric ether	$16c + 15h + 8cl$	Chloride of etherium	$e + cl$	
Hydrobromic ether	$4c + 5h + i$	Chloro-carbonate of etherium	$3(e + cl) + (4c + 5cl)$	
Hydrobromic ether	$4c + 5h + b$	Iodide of etherium	$e + i$	
Mercaptan	$4c + 6h + 2s$	Bromide of etherium	$e + b$	
Mercaptide of mercury	$4c + 5h + 2s + hg$	Sulph-hydrate of etherium Sulph-hydrargyrate of etherium	$(s + h) + (s + e)$ $(s + hg) + (s + e)$	Lately discovered by Zeise of Copenhagen.

ART. XII.—*Medical Problems*. By WILLIAM GRIFFIN, M. D.
Limerick.*(Continued from Vol. IV. p. 357.)*WHAT PRINCIPLES SHOULD BE KEPT IN VIEW IN THE TREATMENT
OF ENTERITIS.

AFTER the great accessions which have been made to our knowledge of the pathology of the alimentary canal, within this last few years, it may appear extraordinary that I should propose the foregoing as a question difficult of solution. In some points in the treatment of intestinal inflammation, there is, I am aware, a very general agreement among medical men, but in others, and by far the most important, I am far from imagining the practice is at all settled or uniform ; there is, indeed, among persons of considerable reputation not only a difference, but a direct opposition of opinion, which sometimes occasions a difficulty in the management of such cases, only conceivable in its full extent by those who have had to stand at the bed-side, and choose between the two, with the conviction that life or death hung upon the decision. But even if the practice was more uniform, until some general principles of treatment are universally admitted, there will always be ground for perplexity, in the timing of remedies, in determining the changes which are to give us our indications, and in fixing the moment when it will be safe to commence or abandon a particular plan of management. Perhaps much of the discrepancy of opinion that exists might be explained by the success or ill success of remedies under the very varying conditions of the disease in which they have been administered. At all events it would be rendering science some service, if even an approach to truth could be attained, and this is the utmost I would hope for until the records of such cases as I shall here offer to the reader's attention, and of those treated on an opposite plan, are multiplied, and compared.

One might suppose, that at least with respect to the most

important of all our remedies in almost all inflammations is blood letting, there must be perfect agreement among medical men, as to its application in enteritis. Perhaps this agreement may be said to exist within the first twenty-four or thirty-six hours from the commencement of the complaint, but certainly not afterwards. Dr. Parr—no light authority even at the present day, says, “In the treatment of enteritis there is much doubt. We are ordered to bleed freely, though the pulse is small, and to repeat it till the pulse rises. When the patient is a robust countryman, and the disease induced by drinking cold fluids in a heated state, this advice may be useful, but it is not generally so. Perhaps bleeding is more seldom necessary in this disease than in any other inflammation ; for it rapidly tends to mortification, and should it not at once relieve, it soon proves fatal.”

Dr. Mason Good, whose work may be regarded as a compendium of the practice of some of the first physicians in this and other countries, and whose learning and ability must necessarily attach considerable weight to any opinion he supports, speaks of bleeding in much the same qualified manner with Dr. Parr, and says, if it does not succeed, it will assuredly hasten the stage of gangrene and abbreviate the term of remedial operations. And again, he says, unless the constitution is tolerably vigorous, and the lancet is employed early, there is no inflammation in which the latter is less likely to be serviceable, or may become more mischievous. Dr. Abercrombie has none of these qualifications ; he of course admits, as every one must, that bleeding in inflammation of any vital organ, to be of much service, should be used at an early period ; but he does not seem to apprehend that it can be readily over done in the first instance, or that its repetition in the advance of the disease is useless, much less mischievous. He recommends after a first full bleeding, smaller ones every hour or two, until the force of the attack is broken ; and seems to consider, that the repetition must at any period be directed by the degree of inflammatory action and strength of the patient's constitution, without reference to its supposed effect in

accelerating the approach of gangrene. Dr. Elliotson says, "the first thing one has to do is to bleed the patient well ; you should set him as upright as he can be, and bleed from a large orifice without any mercy. You should of course consider the patient's strength ; but you should bleed on till you make a decided impression—till you knock down the pulse, and make him faint." These are discrepancies among respectable authorities, sufficiently alarming at the very outset, but they fall far short of others, which the inexperienced physician will find himself surrounded by, at his next step in the treatment—the administration or rejection of purgatives.

To revert to Dr. Parr again, he says: "The salutary termination of the disease is by a discharge of fæces ; if this can be obtained the patient is safe." Should mild purgatives prove ineffectual, he recommends that the more acrid ones be resorted to, and gives the same advice respecting injections. Dr. Pemberton, after premising general and local blood-letting, recommends, "if the stomach will bear liquids of any sort, a strong solution of epsom salts in mint water, with an addition of tincture of senna in such quantities, and at such intervals, as the sickness of stomach will allow. If, however, all liquids are rejected, we may direct an usual dose of calomel in union with the compound extract of colocynth every six hours, *ad quartam vicem*. In the intermediate hours, an injection of water-gruel with common salt may be employed. Purgatives are to be continued during the whole course of the complaint." Dr. Mason Good says, "from the first we must attempt cathartics, and if the stomach will not retain the milder, we must have recourse to the more acrid." He asserts, "it does not necessarily follow, that the irritation of those more acrid purgatives will add to the inflammatory irritation, and that the cure depends almost entirely on our success in procuring free evacuations." Dr. Elliotson, says, "after bleeding undoubtedly a very large dose of calomel should be exhibited ; after it has been taken some time, other purgatives should be given with active injec-

tions, so that if possible they may meet half way and combine, and then," as he expressively asserts, "*out goes the disease.* We should first," he tells us, "bleed freely, because purgatives will not operate until we have done that; we should then give a large dose of calomel, such as a scruple, by the mouth, and a strong purgative injection, with plenty of salts, or salts and senna, or colocynth, or oil of turpentine, and repeat the calomel in ten grain doses every four or six hours, *giving purgatives in addition from time to time.*"

Let us contrast these with other opinions of the very highest character. Dr. Abercrombie says, "we have seen the bowels obstinately obstructed, and we have seen them spontaneously open or easily regulated, and in both cases the disease has run its course with equal rapidity to a fatal termination. We have found no reason to believe that the retention of fæces was in itself injurious in one case, or the free evacuation of them beneficial in the other; on the contrary, we have had evident reason to believe, *that in several cases in which the inflammation appeared to be subdued, the action of a purgative was immediately followed by a renewal of the symptoms.* Along with these considerations, we must keep in mind the fact, that in the ordinary cases of enteritis, the action of purgatives is in general entirely fruitless; they are usually vomited as often as they are given, and consequently can only prove additional sources of irritation. I know that much difference of opinion exists upon this subject among practical men; but upon the grounds now referred to, *I confess my own impression distinctly to be, that the use of purgatives makes no part of the early treatment of enteritis; on the contrary, they are rather likely to be hurtful until the inflammation has been subdued.* When we have reason to believe this has taken place, the mildest medicines or injections will often be found to have the effect, after the most active purgatives had previously been given in vain. In the general treatment of enteritis indeed it is desirable to keep the bowels if possible free from distention; but this object may,

I think, be usually obtained by mild injections, or by the tobacco injection." Dr. Gregory of London, and other physicians of equal respectability, entertain similar views with Dr. Abercrombie in the treatment of this disease. Broussais limits the use of purgatives to the close of the acute stage, and Armstrong, of whose practice we shall have to speak again presently, leaves them altogether out of sight, or mentions them only as requisite when the inflammation is over. It remains for us amidst these conflicting opinions to inquire anxiously on which we are to rely in practice. The following interesting case may assist us in determining the question.

A lady, aged thirty-two, while engaged with an evening party, on the 1st of November, was affected with pain in the lower part of the back, and great weariness. She took three glasses of port wine with the hope of relieving it, but they did her no service; she became feverish in the night, and in the morning (2nd) had headach and thirst with a pulse at 90; she was ordered some castor oil. At three in the afternoon she complained of severe pain in the stomach, and on examination the whole of the abdomen was found excessively tender to the touch, and somewhat full; she was warm and restless, and had an anxious and painful expression about the brow. *The castor oil had operated two or three times freely.* As I could not detect any tenderness of the lumbar spine, although she still felt the pain about the sacrum, I was satisfied the attack was purely inflammatory. And placing her upright in the bed, I opened a vein in the arm; eight ounces of blood were hardly drawn when she fainted. The orifice was closed; she got some warm drink, and was laid in the horizontal position until she had perfectly recovered. The orifice was then re-opened, keeping her in the recumbent posture, but after losing two ounces more, she fainted again. Finding it impossible to procure the desirable quantity of blood in this way, I applied two dozen leeches, chiefly to the right hypochondriac and iliac regions, which were more exquisitely tender than other parts of the abdomen, and gave three

grains of calomel and a grain and a half of opium, with two grains of the former, and one of the latter, every second hour. The leeches drew about eight ounces of blood, and a great deal drained away through the remainder of the night after they fell off. In the morning (the 3rd) the pain still continued extremely severe, and the tenderness was so acute that she could not turn to either side, and scarcely could bear the bed-clothes to rest on her; it extended over the whole of the abdomen. I now took twenty ounces of blood from the arm freely, and without producing faintness. As the bowels had not been moved since they were affected by the castor oil in the middle of the day before, and there was some tumidity of the abdomen, pills composed of equal parts of aloes and extract of henbane, were ordered, and an oatmeal tea injection with castor oil, and two teaspoonfuls of spirits of turpentine. On administering this last she was seized with a dreadful forcing or bearing down pain in the anus, and passed nothing; the pain seemed as excruciating as any that could occur in violent labour; lasted for about twenty minutes, and was then relieved by the warm bath. In two hours afterwards a simple injection of oatmeal tea was given, followed by similar suffering, and was in like manner retained. The permanent pain was at this period severest in the left iliac region and about the navel, where the tenderness on pressure was extreme; the countenance was more anxious; the tumidity of the abdomen was increasing, and the stomach beginning to reject the drink. In consultation with Dr. Geary, sen., to whose judgment on these occasions I have been often indebted, it was now agreed to take blood again, and eighteen ounces more were drawn, being the third general bleeding within twenty-four hours. Two grains of opium and a grain of calomel were given immediately after, and ordered to be repeated every two hours through the night. In the morning (the 4th) there was a considerable improvement; the abdominal tenderness was diminished, the pain and sickness of the stomach had very much subsided, and the injections had come away with some dark, thin, feculent matter;

she still, however, felt pain and a sense of great weariness at the lower end of the sacrum, shooting up through her back ; and she had a great difficulty in passing water. She now informed me, that a few days previous to her present illness, she was attacked with a profuse yellow discharge from the vagina, attended by heat and sense of scalding, but that it had since abated or almost ceased. A fomentation to the lower part of the abdomen was ordered, and the opium was continued in two grain doses, every two hours, without the calomel. In the evening the improvement appeared progressive ; the skin was cool ; the pulse soft at one hundred and ten ; the tongue cleaner ; the abdomen was still full, but had nearly lost its tenderness, and she could turn in the bed with little pain. She spent the night and the following day (the 5th) with little uneasiness except for the soreness in the lower part of the back, and difficulty in passing water, which sometimes occasioned violent straining and bearing down. Though suffering much in this way, she could not be persuaded to allow of the introduction of the catheter. She now for the first time asserted, that matter was passing from the rectum ; it was, however, supposed to be merely a return of the leucorrhœal discharge ; no further attention was paid to it ; and as there was so many other symptoms of amendment, the opium was ordered to be given in grain doses, only every fourth hour. She had already taken thirty-two grains within the last thirty-two hours, without its occasioning stupor, headach, or any other unpleasant symptom, except on the last night, when she complained of frightful dreams and startings. On the next evening, as she lay on the sofa while her bed was making, she felt a solid substance passing from the rectum, which alarmed her terribly. On examining, I found a rope of sloughy stuff, soft and purulent outside, but tough and fibrous within, not unlike the ischiatic nerve in a decayed state, hanging from the anus for the length of a foot or more. On attempting to draw it away, it appeared to be still adherent within the gut, and she complained of pain. After a little, however, it was removed without much effort, and

a gush of matter to the amount of perhaps two tablespoonfuls followed. The slough was about the thickness of the thumb, or more, and was fifteen or sixteen inches in length. We at first supposed it was a portion of the small intestine which had mortified, and been thrown off; but on close examination no distinct traces of a canal could be found. Sometime after an injection of warm water and sweet-oil was administered, which came away in about twenty minutes mixed with some matter, but without any appearance of fæces. I now introduced the finger into the rectum, and felt at the posterior part, close to the sacrum, a rugged irregular edge, as if it was the termination of the part from which the slough had been cast off; the examination gave much pain, especially when I pressed within upon the intestine. Several days passed without much alteration in the case, there was matter daily discharged to the amount of three or four ounces, and there was at times severe dysury, at last demanding the use of the catheter. The urethra was blocked up with a thick mucous discharge, which closed the common instruments, and prevented the waters escaping until a very large sized flexible one was introduced. Sometimes the difficulty appeared to be connected with mere nervous irritation, as she occasionally got sudden and unaccountable relief, the water coming off without any very obvious reason. Three days had now elapsed since the subsidence of the pain and tenderness of abdomen, and six days since the bowels had been moved. There appeared to be some fulness of the abdomen, and she began to feel uneasiness again in the left iliac region; we had allowed the bowels to remain so long at rest with a view to the healing of the ulceration in the rectum, and from an apprehension that much disturbance of the intestine might increase the inflammation and sloughing. It was evident, however, that there might be considerable risk in allowing the distention to go on further. A dose of castor oil was therefore given, followed by pills of aloes and henbane, every second hour, which operated freely in the course of the day; (November the 8th); the motions were

thin, dark, and streaked with matter on the surface. The pain in the left iliac region nevertheless, to our great surprize and alarm, became progressively worse, and extended rapidly over the whole of the abdomen ; there was a return of the restlessness and distress of countenance, and the stomach began to reject every thing. The case now presented a more alarming aspect than it did even on the former attack ; there was increasing distention of the abdomen ; the pulse became feeble and rapid ; the thirst extreme ; the vomiting frequent ; the countenance was sunk, the look anxious, and the face was covered with clammy perspiration. We were here placed in one of those difficult situations in which the diversity of medical opinions on the treatment is most distressing to the practitioner, after all his reading and study of the subject, throwing him back without clue or guide upon his own resources. There was too much debility, and the complaint was too far advanced to venture on general blood-letting ; leeching alone could effect little, and purgatives, which operated freely both at the commencement of the first attack and of the present, not only without relief, but with apparent disadvantage, might only increase irritation and render recovery hopeless. The recurrence of the inflammation must have arisen either from the slough having penetrated the intestine and allowed its contents to escape into the cavity of the abdomen, or from the direct effect of the purgative ; or it might be from our having deferred it too long, and permitted the bowels to become injuriously distended. We thought it exceedingly probable, from the extent and depth of the slough at the time it was cast off, that perforation would eventually take place, and as that event is not always announced by the sudden pain usually ascribed to it, there was reason for strong suspicion of its having occurred. On the other hand, the fact that inflammation of the bowels has often recurred from the imprudent administration of purgatives,* and that in this case it had only increased after

* Abercrombie furnishes instances of this, and more lately Dr. Stokes of Dublin. — See Dublin Medical Journal, vol. i. p. 120.

free evacuations, gave some colour to our apprehensions that they had done mischief. The argument was, after all, perhaps equally strong in favour of the third and opposite proposition, that the distention of bowels had been allowed to go on to an injurious extent. We had determined, in fact, so great was our apprehension of increasing the slough, and thus occasioning perforation of the intestine, not to give a purgative until we had some manifest indication that the confinement of the canal was doing harm, and hence necessarily the uneasiness of bowels commenced before the purgatives were given. All, therefore, that could be fairly inferred from the continuance and increase of their inflammation after the administration, was, that they had failed to arrest it. The result of these considerations was, our trusting to opiates (which had been so successful before) for removing the inflammation, and our determining to watch the progress of the case, that we might, if possible, detect the real cause of its recurrence. Three grains of opium were given at first, and two every second hour afterwards: a dozen leeches applied to the abdomen, and fomentations, with decoction of poppy heads, were made use of. The effect was wonderful; the pain and tenderness gradually subsided, the vomiting ceased, the pulse became slower, and she got some sleep. In the morning (November the 9th) the improvement was more considerable; the pulse fell to 110; she retained every thing on her stomach, and her countenance was full of hope and cheerfulness; the tenderness of the abdomen had almost entirely subsided. This perfect relief without the use of any purgative was little calculated to relieve us from our perplexity as to future treatment. She made little complaint for the ensuing five or six days, except that she was occasionally annoyed with dysury; and the continual passing of matter from the rectum, with pain and soreness inside the sacrum, as she described it, which made it distressing to her to cough, or laugh, or sit up in the bed to take food. After the great amendment on the 9th, the opium was gradually diminished, at first to a grain every third hour

and eventually to a grain and a half or two grains at bed-time only. The appetite had returned, the tongue was clean, and she took a fair quantity of nourishment daily, chiefly gruel or steeped bread. We now watched the state of the abdomen with much anxiety, and especially about the left iliac region, where the pain commenced before, and where indeed the injurious effects of distension were likely to be first felt, as in all probability the sloughing extended as far as the sigmoid flexure of the colon. There was already a considerable fulness, but as there was no tenderness whatsoever on pressure, and as we had just a chance that a natural motion might take place, we still refrained from giving a purgative. About the seventh day from that on which the bowels were last moved, the tenderness in the left ilium, as we anticipated, was again felt, and it was soon followed by pain and feverishness, with a disposition to vomit. There was now no doubt on our minds that the recurrence of the attack was attributable to distension, and not to perforation of the intestine, as we had apprehended. After giving a large opiate, therefore, she was ordered a few grains of calomel, with mild doses of castor oil and jalap every second hour, until the bowels were freely moved. Great relief was obtained, but the pain and tenderness of the abdomen finally subsided on resuming the opiates for twelve or fourteen hours after the purgative had ceased operating.

Although she was now for the third time freed from all symptoms of active inflammation, we could not but consider her situation as very precarious. One should be very sanguine to look forward with any confidence to the healing of such an extensive sore as remained after the detachment of a slough of fifteen or sixteen inches in length, and from which still matter was daily discharged, while the most minute ulcerations of the rectum are so troublesome and difficult of cure. While it was considered an object, under these circumstances, to keep the bowels as long as one safely could without acting, care was taken that no injurious accumulation should again occur. A mild purgative was given

at the farthest on every fourth day, which operated without creating pain or uneasiness, and by diminishing the interval gradually, the bowels were after a little brought to act daily with a small dose of infusion of rhubarb and cascarilla. She was still however unable to sit up in the bed, or to turn to either side on account of the excessive soreness inside the sacrum: the motions continued to be smeared with matter; sometimes small bits of fresh slough came away; sometimes spoonfuls of healthy pus with stuff like jelly: weak sulphate of zinc injections, and even those of simple water, were made use of, but they gave great uneasiness, and served to do more harm than good. At this time, about eight weeks from the commencement of the attack, she became very hysterical; got fits of crying and laughter, which lasted for hours, and sometimes was slightly delirious. She had been kept very low all through her illness, but was now allowed nourishing diet; meat and a little wine: there was an immediate improvement in all the symptoms; her strength and health mended; her mind became cheerful; the discharge of matter diminished, and at last was only occasionally observable. The soreness about the sacrum was also lessened so considerably, that she was able to dress, lie on the sofa, and sometimes sit up for a short time. At the end of three months she could move about the room a little, and at the termination of the fourth, she was perfectly recovered, and able to walk some miles in the country without injury or fatigue.

The occurrence of sloughing of the rectum, and perhaps of the colon in the foregoing interesting case, to an extent I believe unparalleled in the records of medicine, created much embarrassment and difficulty in its management. The treatment cannot, therefore, be reviewed as applying to a case of simple enteritis, without reference to the incidental dangers with which it was complicated. The reader's attention may be fairly directed to some very important facts, and the inferences

deducible from them, which bear distinctly upon the general principles of cure in that complaint, and first of blood-letting.

I shall not waste time in debating whether this remedy is advantageous in the early stage of enteric inflammation, any more than I should in a similar affection of any other viscus. It is, I believe, universally admitted at the present day, that blood-letting and the amount to which it may be carried, should bear reference only to the strength of the patient: it is also the practice to estimate the strength by the state of the patient's health previous to the attack, and not at its commencement. A strong man, for instance, may be seized with enteritis, the powers of life may be suddenly depressed, and the pulse become feeble. This is obviously a state of indirect debility; there is no outgoing; nothing in the time to account for it; the man will bear bleeding well, and become stronger as the blood is taken away from him. On the other hand, a strong woman may become exhausted in a tedious labour; she may be delivered with instruments; she may get peritoneal inflammation. Here if we find a very feeble rapid pulse and other appearances of debility, we cannot with the same readiness pronounce it to be indirect; for the patient has been probably worn out before the inflammation began, would sink under a large bleeding, must be treated by other means. In the case before us, it will be observed, that the lady fainted at the first bleeding, when eight ounces were drawn, and so little could be obtained afterwards by the lancet, that leeches were resorted to, yet the inflammation went on, and next morning twenty ounces were taken from the arm, and on the same evening eighteen more, without inducing the slightest symptom of weakness. The debility in the first instance was evidently indirect, and probably depended on some nervous idiosyncrasy. Occurrences of this kind would lead one to doubt the propriety of always placing the patient upright in the bed, as Dr. Elliotson directs in taking blood. His object is to insure its producing some effect on the arterial system; to bring on syncope: but it is evident, it may bring it on sooner

than would be at all desirable in habits particularly constituted. When syncope occurs without any direct relation to the loss of blood, the effect may be of use in colic; but in violent inflammation it is temporary only, as soon as the heart recovers itself; it has yet all the material for maintaining its action strongly, and the inflammation consequently revives with it. There must be an absolute abstraction of blood capable of directly depressing the whole system to produce any permanent influence on the disease. Dr. Marshall Hall's ingenious conjecture, that the amount of inflammatory action might be estimated by the power the system evinces of resisting syncope in the erect position, is only true in the advanced stages of inflammation, when all the idiosyncrasies are sunk or lost in the one great absorbing action. In the commencement the character of the habit prevails; in the advance, the character of the inflammation only. At first we shall have differences in the symptoms in different individuals, though the disease be the same: by and by these disappear as the inflammation rises, and it displays an identity of symptoms in all. Dr. Marshall Hall's test of inflammation will, therefore, we fear, be often found unavailing when assistance in the diagnosis is most needed; that is, in the beginning. In the case, the history of which I have detailed, the lady, though healthy and of a full person, was of a very hysterical habit, just such a one as those attacks of simulated inflammation might readily arise in. The occurrence of syncope on withdrawing a few ounces of blood, made it still more probable, that it belonged to the class of irritative disorders, rather than to those of a purely inflammatory nature. But on examining the spinal column to ascertain whether there was any morbid state of the cord to which the excessive tenderness and pain of the abdomen could be ascribed—*there was no soreness on pressure.* Notwithstanding the fainting, I had, therefore, no hesitation in looking on the attack as one of severe inflammation, and in this I was amply borne out by the event.

But to return to our subject; no one now, as I have said, doubts the propriety of bleeding as largely as the strength will allow in the early stage of enteritis, or that the earlier the lancet is made use of the better. But the question remains, shall we not bleed at any period of the disease while the inflammation exists, limited only, as in the early stage, by the powers of the constitution? It is said, and as I have shewn by high authority, that bleeding, if it should not succeed, and its success is of course very doubtful in the advance of the disease, hastens the stage of gangrene; this, it must be admitted, is very contrary to what occurs in the inflammations of other organs, and to the very prevalent belief among medical men, that gangrene in these instances results purely from the violence of vascular action. If the tendency to it arises from a peculiar diathesis existing at the time, bleeding can of course do no good, and may possibly prove injurious; but what remedy in such a case could save the patient. If on the other hand, it supervenes from the violence of the inflammation, what can prevent it if bleeding does not? Though disposed, as far as my own views are concerned, to reason in this manner, I can by no means treat slightly the apprehensions of those able physicians who have condemned the use of blood-letting in protracted enteritis. Their opinions, however erroneous, must have been founded on the experience of its ill success, and before we can fully reconcile ourselves to the practice, this ill success should be accounted for. It will be allowed on all hands, that one large bleeding has often subdued this and other dangerous inflammations, when employed at an early period; while depletion to any amount scarcely succeeds, if it has lasted some ten or twenty hours. There is, then, evidently, even with the same apparent amount of inflammation, a considerable difference in the actual pathological condition of the system at the end of the first, and of the second, or third day; there is some change of state or structure produced capable of keeping up the inflammation, which did not exist within the first twenty-four hours; the inflamed part

has acquired a vitality beyond that of other organs, and as bleeding only subdues inflammation by diminishing the vital powers generally, those organs will necessarily die before the inflammation can be thus subdued. It follows, therefore, if the indication with which we commence depletion, that of absolutely subduing the disease, by abstracting from the powers of the system at large, should direct us all through its progress, we should, after a very short period, be aiming at what was impossible of accomplishment, and very often exhaust the powers of life beyond the hope of recovery. It was this error we apprehend, that occasioned all the ill success which made such an impression on the older practitioners, and brought a most valuable remedy into unmerited disrepute. The truth seems to be, that when we have failed in arresting the inflammation by free and early bleeding, we must give it up as our main resource, and employ it as auxiliary only. We may still make use of it, but it should be simply with the view of diminishing or breaking the violence of the disease, and rendering it more amenable to remedies which operate after a different manner: to leeching, which, by drawing blood from the inflamed parts directly, subdues the disease in a far greater ratio than it subdues the living powers generally: to opiates, which, in diminishing the sensibility of the system, seems also to lessen its power or tendency to support inflammation; to mercurials, which counteract its action; or to counter-irritation, which relieves by derivation to some less important tissue. This was the doctrine, or at least the treatment of Armstrong, and that his admirable papers on inflammation have as yet had so little influence on general practice, is to us one of the wonders of modern medicine.

I now come to consider a question of much greater difficulty, and about which practitioners are almost as much divided in opinion at the present, as at any former period; the employment of purgatives in this disease. It is an undeniable fact that in a great number of cases of enteritis, the salutary termination of the complaint has been by free evacuation from the bowels,

and that before this occurs perfect relief is seldom obtained. To the experience of this strong fact, we may readily refer the popularity of the purgative treatment, and indeed, it would seem almost extraordinary, that other and so different modes of management should have made any way in opposition to it. Those instances, however, of occasional occurrence, in which the complaint went on to a fatal termination, although the bowels were free or easily moved, through the whole course of it, or those in which perfect relief was obtained, as in the one I have given, without any discharge at all by the bowels, necessarily startled the practitioner, and led him to inquire whether he had not been too hasty in generalizing his conclusions. Effects are too often, in the science of medicine, mistaken for causes. When cholera first appeared in this city, calomel was profusely employed in its cure, and it eventually was found, that patients who became salivated, almost invariably recovered. This was esteemed proof positive of the efficacy of the treatment, and mercurials became more popular than ever. I found, however, on examining the registries of the hospital with which I was connected, at the termination of a month, that in the stage of collapse no more than one patient in ten could be brought under the influence of mercury, so that there were only four recoveries in forty.* This told little for the remedy, as far as cases in collapse were concerned, and I immediately set about ascertaining what the amount of spontaneous recoveries might be in the same stage. From all I could gather from the experience of others or my own, I began to suspect that they would reach nearly the same amount, and at last I became perfectly convinced, that the actual fact was, *the patients did not recover because they were salivated, but they were salivated because*

* The same registries proved the decided efficacy of calomel, at any period of cholera previous to collapse. Of those patients who were brought in with the pulse perceptible at the wrist, we sometimes lost but five in the hundred, and never during the most fatal period more than fifteen.

they recovered. Mercury in any shape, in the stage of collapse, was thenceforward discarded from my practice in the hospital, and though it excited some observation at the time, the subsequent experience of the profession at large bore me out in the decision. I cannot but feel, that somewhat of the same error prevails with respect to purgatives in enteritis; the disease is not a very common one, and the experience of an individual could scarcely warrant him in offering opinions at all confidently, when they are opposed to general practice, but certainly all the information I can glean, or the experience which has fallen to my share, would dispose me to say, that in intestinal inflammation, the relief obtained is seldom the direct effect of the purgative, and that *people do not recover because they are purged, but they are purged because they recover.* I shall, however, examine some other arguments, that have been offered in favour of this treatment.

“For what reason,” inquires a reviewer of Dr. Abercrombie’s opinions on the subject,* “do we employ active purgatives in the early stage of thoracic inflammation? To lessen the whole mass of circulating fluids, and reduce the general action of the heart and vascular system. Now in abdominal inflammation, provided the mucous tissues are not inflamed, purgative medicines excite the secreting vessels, not only of the whole internal surface of the intestines themselves, but of the glandular organs whose excretory ducts open into the *primæ viæ*, and thus powerfully deplete locally the vascular system of the abdominal viscera.” Again it is said, “when that portion of the peritoneum reflected over the intestines is inflamed, and the villous coat unaffected, to excite the natural action of the mucous membrane, immediately after proper vascular depletion, is a powerful means of checking the disease; in the same way, that a free expectoration from the mucous membrane of the lungs, relieves the vascu-

* See *Medico-Chirurgical Review* for September, 1820.

cular turgescence and inflammation of the parenchymatous structure or pleural covering of the same organ."

With respect to the first argument it is sufficient to observe, that no one can dispute the utility of the indication, or that purgatives would tend to fulfil it, in any inflammation in which the bowels themselves were not engaged. But it is a different matter attempting to lessen the quantity of the circulating fluids, and diminish vascular action, by stimulating healthy secreting surfaces to action, at a distance from the inflamed parts; and stimulating the inflamed part itself, or parts contiguous to it. All analogy is against the principle of exciting the action of inflamed tissues; the only exception to which, that I can bring to mind, is to be found in the inflammations of mucous membranes. These, it is ascertained beyond doubt, are often more readily cured by the application of strong stimulants of a particular class; after depletion, or sometimes without it, than by the usual antiphlogistic treatment. An ointment of strong nitrate of silver is found to cure the purulent ophthalmia of children and indeed a large proportion of all simple inflammations of the mucous membrane of the eye, more rapidly and permanently than purging and leeching. An injection of the same preparation is said to subdue recent gonorrhœa, more speedily than other treatment, and we have indisputable testimony of the advantage derived in dysentery from the use of purgatives, although they have been so deprecated by the Broussaists, and indeed by those of a much less theoretic school. The advocates for purgatives in peritoneal enteritis, adopt this principle, but they adopt it too literally, and without sufficient reference to actual results. They are strictly for adherence to the rule of leaving inflamed parts at rest, without making any exception in favour of mucous membranes, and their doctrine, consequently, is, to purge when the peritoneal coat only is affected, as in enteritis, not to purge when the mucous coat is the seat of disease, as in diarrhœa or dysentery. In both I differ from them; I have shewn that inflammations of mucous surfaces cannot be

brought precisely within this law, which seems to influence all the other tissues ; and with respect to the propriety of purging in enteritis, because the mucous coat is free, it appears to be introducing a refinement in practice, which the results will not bear us out in. Is it absolutely true that we can violently stimulate a mucous surface which is healthy, in connexion with a muscular or serous which is inflamed, without increasing the inflammatory actions in the latter ? I believe not : on the contrary, to refer again to the eye where we can see the thing, we find that the same stimulants, that in a state of simple inflammation of the conjunctiva produce a rapid cure, will, if there be any inflammation of the sclerotic coat, make both textures worse. Mr. Guthrie is never in the habit of using the nitrate of silver ointment, when any of the internal coats of the eye are engaged in the inflammation, although if the theory I have been objecting to was correct, stimulating the conjunctiva to increased sensation ought to relieve the sclerotic. It seems, in fact, not only true, that it is injurious to excite parts acutely inflamed into action, but it is not safe to stimulate parts which are contiguous or closely connected with them ; and this is commonly held in view in the very instance which the writer before referred to cites as an analogy, that of inflammation of the lungs or pleura. It is never attempted to stimulate the vessels of the bronchi to increased action, until the inflammation of the lungs is subsiding under the influence of remedies which operate in a different manner, as blood-letting, emetic tartar, calomel, and opium or blistering. It is indeed well known, that efforts to bring on expectoration in acute pneumonia, previous to large depletion, will always fail, while it sets in almost spontaneously, if the inflammation is first got under control. In the same manner it is almost universally found, that purgatives will not operate in the early stage of enteritis, unless very free depletion be made use of ; but that when that is premised, and the force of the inflammation is broken, motions will be found to come on naturally, or with the assistance of the mildest medicines.

Thus what are said to be most important parts of the treatment in both instances, expectorants and purgatives, are absolutely unavailing or injurious when most required ; that is, when the inflammation is at its highest point, and disorganization rapidly proceeding. This cannot be said of the remedies which have been preferred by those who are indisposed to the employment of purgatives in the early stage of enteritis ; as leeching, opium, or calomel and opium, they are useful from the first, and would in numerous instances effect cures without blood-letting at all, or where it had failed, or was totally inadmissible.

To revert again to the case of enteritis, the history of which I have given above, there was an accidental peculiarity in the management, arising out of our apprehension of the sloughing, which led to some interesting results. We not only avoided purging, but for a time designedly kept the bowels at rest, that there might be opportunity given for reparation. If purgatives were so essential, this would have been fatal ; yet in one instance the bowels were unmoved for six days, and in another, seven days, before injurious distention took place. In the third, where they were allowed to remain confined to the fourth day only, no injury at all was sustained. *On all these occasions, purgatives had been given at the commencement of the inflammation, long before it had reached an alarming amount, and they had operated freely without giving the slightest relief.* If they had been persevered in, instead of the opium treatment, will any physician take upon him to say, that the termination would not have been fatal ? or that any other remedial plan would have procured such rapid amendment and with such apparent certainty ?

It is not a little in favour of the opium treatment, as contrasted with that by purgatives, that Dr. Armstrong scarcely alludes to the latter as a remedy, although he does not seem to have had any more decided objection to them, than their uncertainty and inferiority. Whenever he thinks of comparing the effects of opium with those of any other remedy, it is only with blood-letting. He tells us, he has witnessed some cases of in-

inflammation of the bowels, where full doses of opium finally effected the cure, after bleeding and purging had completely disappointed his expectations. "So great indeed," he says, "is my confidence in full doses of opium in peritoneal enteritis, that if compelled to say, supposing myself the subject of the disorder, whether I would exclusively rely upon them solely, or upon blood-letting solely, I should certainly fix upon the former; at the same time I should like to have the simultaneous influence of both remedies, being convinced they are by far more serviceable combinedly, than separately employed."*

* Dr. Armstrong first invariably bleeds to approaching syncope, whatever may be the quantity necessary to produce this effect. As soon as the patient revives, three grains at least of good opium, in the form of a soft pill, are given, and quietude is strictly enjoined, so that if possible sleep may be obtained. In some irritable habits less of the solid, and some fluid opium are prescribed, that the anodyne and sedative effects may be more quickly produced. Its effects, he tells us, thus administered, are to prevent a subsequent increase in the force or frequency of the heart's action, and a return of the abdominal pain, while it induces a tendency to quiet sleep, and a copious perspiration over the whole surface. In many instances this simple procedure will remove the inflammation at once, nothing being necessary, when the patient awakes, but spare diet, absolute rest and quietness, with an occasional mild laxative. He always visits the patients in three or four hours after giving the opium, and if there be pain on pressure in any part of the abdomen, with a hot skin, and quick jerky pulse, he bleeds again to complete relaxation, and repeats two grains of opium with four or five of calomel, in the form of a pill, as the faintness disappears. A third venesection is rarely requisite, but if, after the expiration of five or six hours, pain and fever still exist, it should be performed once more, and followed by the administration of a grain of opium, and two or three of calomel immediately, and half a grain of opium and two of calomel every four hours, until sleep and general perspiration are induced.

It is evident from the cases published by Drs. Graves and Stokes, and from the one above detailed, that the opium may be safely employed with much more freedom than Dr. Armstrong was accustomed to recommend. There is one precaution which it may perhaps be necessary to offer: I have two or three times found difficulty of passing water succeed the opium treatment, where it was perfectly successful, and in one instance, after a profound sleep, the patient was awakened by uneasiness from distended bladder, and could not evacuate it at all; the catheter was intro-

This was supposed to be a somewhat extravagant encomium on opium by Dr. Armstrong at the time. Since the death of that celebrated and excellent physician, Drs. Graves and Stokes of Dublin have directed our attention to cases not of very infrequent occurrence, in which there is so much debility connected with inflammation, that one cannot look for advantage to depletion in any shape; such are the cases occurring after tapping in exhausted dropsical habits, and of low puerperal peritonitis. These physicians have also given some remarkable ones of peritoneal inflammation from perforation of the intestine, in which not only was bleeding altogether forbidden, but the operation of a purgative would have been certain death. These were in a worse alternative than that which Dr. Armstrong supposes for himself; there was no choice left them but opium, and it in every instance surpassed all the anticipations he could have formed of its unaided virtue.*

Perhaps no little creature was ever restored to life and health again, after having approached the verge of existence so closely, as a child, with a report of whose case I have been favoured by my brother. It tells so strongly for the influence of opium in one of those circumstances of disease to which Drs. Graves and Stokes have pointed it out as so particularly applicable, that I shall venture to quote it.

“In the early part of this year I was called to see a boy, five years old, in the last stage of typhus fever. The illness had been very much protracted, and had produced great emaciation and debility. I found him lying partly on his back, and partly on his side in the bed, moaning, speechless, and insensible; the wasting was excessive, and the pulse 140 and

duced, and gave instant relief. When calomel is conjoined with opium, Dr. Armstrong very properly reminds us, that as the specific effects of mercury are most easily produced after copious abstractions of blood, we should use a proportionate care in its exhibition.

* Dub. Hospital Reports, vol. v. ; also Dublin Med. Journal, May, 1832.

feeble, indeed almost imperceptible ; his features were quite drawn and pale ; his nose, cheeks, and forehead cold ; and on examining the feet and hands, they were found equally so ; his head had fallen aside on the pillow ; his breath was drawn by gasps, and at intervals, some seconds apart, like one expiring. When some drink was put into his mouth with a spoon, it brought on distressing cough from the difficulty of swallowing. On examining his abdomen, which was tumid, hot, and excessively tender all over, he moaned loudly. The only treatment he had been under for some days, was, the use of occasional doses of castor oil which had not operated ; his bowels had not been moved for three or four days.

“If there had been more strength, bleeding would have been indicated by the state of the belly, and considering the state of the bowels, confined for three or four days, and now tumid, hot, and tender, I believe, very many practitioners would have been tempted to employ at the least some mild purgatives. I recollected, however, those interesting cases by Drs. Graves and Stokes on the use of opium in cases of perforated intestine, and as ulceration of the mucous membrane, perforation, and peritonitis are not uncommon terminations of typhus, and this little fellow's symptoms seemed in a degree to indicate some such lesions, I ordered him a grain of opium with four of extract of henbane, more as a forlorn hope, than with any expectation of its averting the impending dissolution. To my great surprise, he spent the whole night in a profound and quiet sleep. He took scarcely any drink, and the little he did take was given him with difficulty by a spoon ; but the tenderness of abdomen and moaning were much less ; the pulse slower and more steady ; and he shewed some signs of returning sensibility. The opium and henbane were repeated, and a dose of castor oil was given early on the following morning. When I saw him in the course of the day, the improvement was so great, that he could take a cup in his hand to drink, and from this time forward his recovery was certain. The opium was still

repeated regularly for a few nights, and when the abdominal tenderness diminished, his bowels were easily moved by castor oil, of which he got a moderate dose daily. As the secretions were found to be much deranged, he was ordered small doses of calomel twice a day for a week or more, at the end of which period he was quite convalescent."

My brother's suspicions of perforation having occurred in this instance, would appear somewhat probable from the fact, that it may and does occur without the violent or sudden pain which has been usually stated as one of the principal symptoms. It would appear from an extraordinary case which lately came under my own observation, that in states of great attenuation and exhaustion of the system, perforation of the intestine with effusion into the abdominal cavity may take place, and continue until death without occasioning any pain or inflammation at all. As it is in some degree connected with our present subject, and for extent of intestinal disease, without the interruption of any of the living functions, is perhaps without parallel in the records of medicine, I cannot resist the temptation of offering it to the reader, at the hazard of prolonging this article a little unreasonably.

A fine boy, aged ten years, after a severe attack of measles, during which the pulmonic symptoms were very severe, was affected with occasional pain in the left side of the chest, harassing cough and hectic fever; which after some time were relieved by medical treatment. There remained only a great appearance of delicacy; constant rapidity of pulse, and an incapability of much exertion: even in these respects he seemed to amend considerably during the summer, by change of air, and gentle exercise. The hectic fever and cough, however, recurred again, without any apparent cause, in the commencement of winter, and there was disorder and irregularity of bowels; with other symptoms of mesenteric disease. He seemed to improve occasionally for short periods, and got on to the next winter. The symptoms of the affection of the chest were now entirely supplanted by the abdo-

minimal disease ; he had little cough ; no pain of chest ; but there was great rapidity of pulse with low evening fever, excessive languor and emaciation, with fulness and pain of belly, attended by a loose state of the bowels. When the fulness and tenderness were less than usual, the enlarged mesenteric glands were distinctly felt, especially in the right iliac region. The swelling of these glands progressively increased at the side mentioned ; where it was great, and with so much pain and tenderness, that leeches were applied. Dr. Marsh, with whom I had consulted on the case at an earlier period, was again advised of the state of our little patient, and seemed to consider that an amount of tubercular disease had taken place, for the relief of which there was little hope. Besides the extreme weakness and the increasing irritability of stomach which existed, precluded any treatment beyond palliation of the symptoms. He had now generally from three to five free evacuations in the day, of a light yellow colour, and little consistence, and complained occasionally of pain in the belly, which was sometimes full, and at others very little so ; the changes were so frequent in this respect, that they were attributed to the absence or presence of flatulence ; but on examining the boy carefully, one morning, I found evident fluctuation. My relative, Dr. Geary, who saw him about the same time, agreed with me, that there was water in the cavity of the abdomen, and we concluded that the case was terminating in a very common mode ; by ascites. In a few days after, on examining the abdomen again, there was little swelling and no fluctuation, and later yet they were once more perceptible. I at last concluded, that the fulness must be the result of mere distention of the intestines with fluid, and that the changes were attributable to my accidentally making the examinations immediately before, or after free evacuations. As the abdomen never afterwards swelled to any greater amount, I attached little importance to the feeling of fluctuation, and did not repeat my examinations with much accuracy ; the tender knots or lumps had latterly altogether subsided, and the abdominal pains were sel-

dom complained of; the looseness of bowels, however, was on the increase; the appetite was fickle and failing; the debility excessive, and there was low fever in the evenings. The little fellow was at this time removed to the country, and I did not see him for some days; he then appeared to me amazingly altered; his countenance had grown sharp and hollow; his voice weak; the motions of his lips tremulous; his pulse was rapid and thread-like; he was unable to sit up or to move about, though dressed daily and taken into the open air, and he was emaciated to the last degree. It was painful to see his naked person, it looked like an anatomy, over which the skin had been drawn. His parents told me, although the motions had become yet thinner than before, that they were unaccompanied by pain; that he had no perspirations; ate a little meat, or a few oysters, every day, and drank some porter; but he was notwithstanding declining rapidly. In a day or two after, as his mother was raising him from the bed to her lap, his countenance altered suddenly, his voice faltered, and he appeared to be fainting; they got him some wine and water, which he attempted to drink when held to his lips, but was unable; he laid his head on his mother's shoulder, gasped like a dying bird, and expired.

I have been particular in describing minutely the mode of the child's death in this very interesting case, as a proof of his having sunk from mere exhaustion. The examination of the body took place on the third day after. On laying open the abdomen, a pint or more of yellow fluid, very much resembling what he passed by the bowels, for days before, was found in its cavity. On raising a fold of one of the small intestines, a hole sufficient to admit the fingers, with curled or thickened edges of a yellow colour, presented itself; it had somewhat the appearance of an opening made with a red hot iron—a look as if it had been burned out, and the same description of yellow fluid was flowing from it, as we found in the general cavity of the abdomen; within two or three inches of this, was another perforation nearly as large, and to our astonishment, on tracing the canal upwards,

we discovered perforations through its whole extent, from the termination of the ileum, to within a foot of the duodenum, which last as well as the large intestines were free from ulceration. *There were seven-and-twenty holes of various dimensions from some that admitted a quill, to others, more numerous, that a finger or thumb would pass through.* They were quite open; the yellow fluid described flowing from them, when raised up; and occasionally, when much handled, more consistent fæces, but of a similar colour. My brother, who assisted me in the examination, agreed with me in the conclusion, that there was no observable difference between the fluids found external to the intestines, and that which flowed afterwards from them, by the perforations. These last had by no means the appearance of having been recently formed; they were for the most part too large and open to suppose so for a moment, and they were evidently not all of the same period; some having minute openings with thin, flocculent edges, others larger ones and more ragged, and many of the largest with thickened margins, as if of old standing. Independent of these appearances, the vast number of them was much against the supposition of their having occurred suddenly, as it would be rather too much to believe, that twenty-seven ulcers perforated the intestinal canal in a day or a night, without occasioning the slightest symptom of such an event, during life. On examining the intestines on the inner side, the ulcers were found to be of much greater extent than the perforations would lead one to imagine; the coats appeared to be gradually eaten through, in a less degree at the outer area of the ulcer, and greatest towards its centre, where they at length gave way; there were many ulcers besides, which had not yet perforated the gut, although in most instances they seemed to have destroyed all but the peritoneal covering. In one only of the perforations had nature made any effort to accomplish a cure; it was a large one at the lower end of the ilium, and the transit of fæcal matter was prevented by effusion of lymph, and

agglutination of its edges to the adjoining fold of intestine, the adhesion was very slight and readily broken through.

The mesenteric glands were considerably enlarged, some had suppurated in the right iliac region, and were filled with scrofulous-looking matter. Two large abscesses filled with matter were also found near the root of the left lung; through the substance of which minute tubercles were scattered; the right lung was healthy; the brain was not examined.

How long the perforations had existed previous to death in this interesting case, and whether the liquid contents of the intestines passed and re-passed through the ulcerated holes continually, are questions which must be solved by future observation. It is sufficient for us at present to consider the extent to which, in certain states of the system, a disorganizing complaint of this kind may go forward without evincing any marked symptoms by which it could be detected. We may at least deduce this inference from it, that in enteric inflammations occurring in exhausted habits, if preceded by diarrhœa or other marks of affection of the mucous membrane, perforation may take place without much or sudden pain. It is, therefore, necessary for us to be particularly vigilant and cautious in our treatment under such circumstances.

It must not be imagined from all I have stated, that I believe purgatives to be at all times unadvisable in enteritis. There are perhaps occasions in which they are of use even in the early stage, but it is difficult to offer indications by which we shall recognize these occasions in practice. In the advance of the disease, when its force is considerably broken, and the bowels may be supposed capable of acting without increasing or renewing the inflammation, there must be an obvious advantage in getting rid of the contents of the bowels, and this may perhaps be then generally effected with safety, by means of mild purgatives, combined with henbane. If, however, there was no injurious distention present, and the inflammation was progressively declining, my disposition would be, to await a more

perfect amendment before I would give even these. The only evils I should at all apprehend in these instances from confinement of the bowels are, irritation and uneasiness from restraining the natural actions and secretions, after once the decline of inflammation admits of their taking place; or at a later period, from actual distention by the intestinal contents. These are certainly evils to be held in view and guarded against, though I believe by no means of that vital importance with which they have been heretofore commonly invested. Without pretending to have satisfactorily solved the problem which I have yet ventured to discuss at such length, I shall merely recapitulate a few of the principal facts, as far as they appear to be such, and leave the inferences to the profession. General experience testifies, that the strongest purgatives will not operate in the early stages of inflamed bowels, unless large depletion by the lancet has been premised, that is, unless the violence of the inflammation has been in some measure subdued. While on the other hand, as soon as this has been accomplished, they commonly occur spontaneously, or with the assistance of the mildest purgatives.

Notwithstanding the free operation of purgatives at an early stage of enteritis, the inflammation may proceed to a fatal termination, unless arrested by other remedies.

A purgative has been known to occasion inflammation of bowels, and when inflammation has been subdued by other remedies, it has brought on a recurrence of it.

Inflammation of the bowels may be perfectly subdued without any evacuation at all.

The bowels may even sometimes continue in a confined state for three or four days after the inflammation has subsided, without occasioning injurious distention.

ART. XIII.—*Cases of Uterine Inflammation*. By FLEETWOOD CHURCHILL, M. D., Licentiate of King and Queen's College of Physicians, Ireland, Lecturer on Midwifery, and Diseases of Women and Children, in the Medico-Chirurgical School, Digges-street, Dublin, &c. &c.

MRS. M'QUILLAN, æt. 45, lymphatic temperament, was taken in labour, May 20, 1834. The pains were tolerably effective during thirty hours, and then became irregular. The head of the child presented in the first position; it descended into the pelvis, and there remained unaffected by the pains during the succeeding eight hours. As the difficulty appeared to arise from feeble and irregular uterine contractions, ergot of rye was ordered. She took three doses, each containing a scruple, at intervals of half an hour. At the time the first dose was given the pulse were ninety-six: in six or seven minutes they fell to sixty-nine, accompanied by a feeling of faintness; before the expiration of half an hour, they rose to the former standard; this depression and subsequent rally were repeated with each dose. The foetal heart was distinctly heard after the labour had lasted twenty-four hours, and more feebly an hour previous to the exhibition of the ergot. The uterine contractions were increased considerably in frequency, and slightly in form by the ergot, but no effort was produced upon the progress of the child; and in consultation with Dr. Darley and Dr. Maunsell, it was determined to proceed to deliver, as the woman was evidently losing ground. Her pulse had become very quick and slightly irregular, and fever was setting in. The catheter had been passed several times during the last thirty-eight hours, but the bladder contained scarcely any urine, notwithstanding the quantity of fluid taken. I introduced the forceps antero-posteriorly in the usual manner, and with some effort delivered the patient of a dead child, without accident. On examining the state of the after-birth, the cord separated, and on the occurrence of some draining, it became necessary to remove the pla-

centa. The pulse at the termination were 130, and the general condition of the patient was far from favourable. However, she seemed gradually recovering for three days, when she was attacked with a violent inflammation of the womb, and an unhealthy superficial sloughing of the vagina and external parts, accompanied with fever of a typhoid type. Pulse 130, and weak. Tongue dry and covered with brown fur. Sordes about the teeth and lips. Skin hot, great thirst; distressed countenance; pain in the belly. The uterus could be felt enlarged and hard, and pressure on the abdomen gave no pain until I felt my finger touching the uterus. Leeches were applied to the abdomen, and stupes. Vaginal injections of tepid water every two hours. Solution of acetate of lead to the vulva. Calomel and opium in large doses. Catheterism was performed three times a day. She continued in this most unfavourable state with but little change for about ten days. A blister was applied to the abdomen. The calomel was omitted as it produced diarrhœa, though fortunately the mouth became affected.

The other remedies were continued sedulously. Towards the end of this time a quantity of fetid purulent matter was discharged from the uterus, which diminished in size and became less tender. The slough of the vagina assumed a more healthy appearance, and the fever decreased until about a fortnight after the operation, when I found her one morning in a state approaching to collapse. Skin cold and clammy; pulse 100 and very feeble; extremities cold. Wine and sulphate of quinine were now freely given, with warm applications to the skin, and after a little time she rallied, and has since gradually recovered. The abdomen is insensible to pressure; a healthy white discharge continued for some time from the uterus; the sloughing of vagina and vulva healed; her pulse fell; her appetite returned, and she is now convalescent though very feeble. I fear the abstract I have given of this case is almost too short to convey an accurate impression of the violence of the attack, and the struggle of the constitution to resist it. I never saw so bad a case continue so long almost hopeless, and yet recover. There are several

points of great interest which I would merely point out. I do not know whether it has been frequently noticed by others, at least it has never occurred in the practice of the Wellesley Dispensary, that we have seen a patient so long in labour, drink freely, and yet the secretion of urine so completely suppressed. The catheter was passed three times in thirty-six hours, and not more than two ounces of urine drawn off. The effect of the ergot was very striking; the immediate consequence was a sudden depression of the heart's action, followed by excitement. I have known it produce excitement before even to delirium, but I had not perceived the previous sinking of the pulse. I hope soon to be able to lay before the profession a more extended series of observations on this important subject.*

I may observe 'en passant,' that Dr. Collins, the late distinguished Master of the Lying-in Hospital, mentioned to me in conversation, that he has noticed a similar depression in all cases in which he has given it. Are we to attribute the death of the child to the increased pressure exercised upon it by the uterus when stimulated into more frequent action by the ergot of rye? I have before noticed, in a report of the diseases treated at the Wellesley Institution for Females, the important assistance to our diagnosis between puerperal hysteritis and puerperal peritonitis, afforded by the tenderness on pressure. In the former it is caused *only when the fingers are felt to come in contact with the enlarged and hardened uterus*; the abdomen generally being free from pain. In the latter the tenderness is diffused and nearly equal in every part of the abdomen. As to the treatment, without diminishing the value of ordinary antiphlogistic measures, I would notice specially the advantage of repeated vaginal injections of warm water, and the exhibition of opium, either alone or in combination with calomel. It is well if the mouth can be affected, but if not, or if diarrhœa supervene, I should rely with much confidence on large and repeated doses of opium

* These cases have since been published in the London Medical Gazette.

as recommended by Drs. Graves and Stokes. During the attack, I am sure the patient took nearly two scruples of solid opium without any ill effect, and with most decided benefit.

On the 6th of February last, I was called upon by my friend Dr. Houghton, to visit a poor woman, Mrs. Cooney, Bass-place. She had been delivered two days, after a natural labour, and had taken cold. She complained of pain in the lower part of the abdomen. The enlarged and hard fundus of the uterus could be felt higher than natural, and pressure on this gave acute pain. The abdomen was unaffected by pressure. Pulse 120 and very weak; tongue brown and dry; sordes about the teeth; great anxiety and weakness; skin rather hotter than natural; bowels free; lochia suppressed. I ordered her a blister to the abdomen, with stupes, and gave five grains of calomel, and one of opium, every two hours. She continued in the same state several days. The mouth was not affected: the calomel was omitted, and opium given alone, in one grain doses. She then gradually became better; a slight discharge of puriform matter took place, succeeded by the lochia. The uterus diminished in size and became less painful; the pulse fell, and the tongue appeared more natural; she gradually recovered, and is now well. Although this cannot be compared for severity with the former case, still the symptoms of uterine inflammation were very decided, as was also the relief afforded by the opium. I shall now give a shortened detail of the case above referred to, and which appeared in the *Edinburgh Medical and Surgical Journal*, for January, 1834.

The patient took cold after delivery, the lochia ceased, and she was seized with violent paroxysms of pain in the lower belly. When I first saw her, the tenderness of the abdomen was universal; but after stuping and venæsection, this disappeared, and pain was caused by pressure, only when I felt myself touching the uterus. I now increased the pressure; she suffered acute pain. In spite of the vigorous administration of the usual antiphlogistics, she became worse; indeed her case appeared hope-

less: pulse 110, small, weak, and sometimes intermitting; tongue dry and furred; with sordes about the teeth. I omitted all the medicines, and gave her twelve pills, each containing one grain of opium, with directions to take one on the occurrence of a paroxysm of pain, and if necessary to repeat the dose. After taking a number of the pills a most beneficial change took place. "In a few days the pain ceased, the pulse became slower, and fuller, the tongue cleaner, and gradually the swollen uterus diminished in size." The patient recovered. In all these cases two circumstances were observed alike—the pain on pressing the swollen uterus, and except in the last for one day, the freedom from abdominal tenderness. Secondly, the relief derived from the exhibition of opium. It would not be just in the two former, to exclude entirely the calomel from a share of the benefit, as it was given along with the opium; yet if we may judge from the latter, in which it was given alone, a very considerable part of the good was doubtless owing to the opium, and I may add to this the benefit derived from it in the two former cases, after I omitted the calomel.

Since writing the above, another case of puerperal metritis has occurred to me, in which the *uterine* tenderness, and the benefit derived from opium, were equally well marked. In this case I had the advantage of consultation with my friend Dr. Ireland. After much suffering the patient is now convalescent. From these cases, puerperal metritis would appear much less fatal than puerperal peritonitis.

ART. XIV.—*On the Injurious Effects of Salt on the Animal System.* By WILLIAM MATEER, M. D., Physician to the Belfast Hospital, Lecturer on Chemistry in the Royal Belfast Institution, &c. &c.

WHEN we consider that salt is the only inorganic substance which enters largely into our articles of food and drink, and also its extensive consumption in all countries, we may justly feel surprised that its medical properties have not been more care-

fully investigated. In former times, when scorbutus prevailed to a great extent, the well known effects of salt in giving rise to, and in aggravating this complaint, made medical practitioners prejudiced against its use. They supposed that it contaminated the blood, and made it unfit for maintaining a healthy condition. At the present day a different opinion seems to be entertained. Chemists having discovered salt in many animal solids and fluids, it has been inferred, that it is a necessary constituent of the animal system, and that its presence serves some useful purpose. It has even been considered an important agent in digestion, secretion, and in maintaining the animal heat. And since scorbutic affections, in the form which they once assumed, have long since disappeared, the opinion now obtains, that the use of salt, as a condiment, is not only salutary, but even necessary for supporting life. To a certain extent, both kinds of opinions are right. It is true that a sparing use of salt may be quite consistent with the healthy state, but on the other hand, it is also true, that the immoderate use made of it by the poorer classes proves highly injurious, in causing changes in the quality of the food which render it less nutritious, or still more directly by acting on the coats of the stomach. The view which Dr. Paris gives of the matter accords also with this; and in proof of it he refers to the well known effects of salt upon the vegetable kingdom. A small portion of it mixed up with the earth promotes vegetation in a very remarkable degree, whereas a large quantity checks the growth, and completely destroys plants.* Dr. Paris, however, merely states these facts, without offering any opinion as to the way in which the injury is induced, or in what it consists. He seems to have been aware of the many difficulties connected with such an investigation, and of the necessity of being provided with numerous observations, and experiments, before any proper conclusion can be arrived at. The subject first presented itself to my notice, while engaged as a district attendant, and in consequence of meeting with a peculiar kind of complaints, which

* On Diet. page 149.

seemed to originate from an excessive use of salt. The facts and reasons which led me to form this opinion, I have been induced to lay before medical readers, with a view of directing attention to the matter, and to ascertain how far they may coincide with their own experience and sentiments.

In addition to the ordinary duty of visiting the sick at their own houses, the attendants of the dispensary in Belfast are also in the habit of giving advice, and prescribing at their own houses, to whatever persons may choose to apply. As not only the really poor, but also the working classes, apply for relief, such cases are very numerous. Those which fell under my notice presented a striking uniformity in their symptoms. Nearly one-half of the adults complained of the same kind of indisposition. The symptoms so generally complained of were great weakness, lassitude after any ordinary exertion, a feeling of soreness through the whole body, and a sensation at the region of the heart, which the patients themselves differently described, as, a "crushing," "tearing," and "gnawing," at the heart. There were also palpitations, stitches through the chest, with a catching cough, dyspncea in a greater or less degree, and costiveness of the bowels. The appetite was for the most part unimpaired, which sufficiently distinguished this complaint from dyspepsia; neither was their present flatulency, or the burning and acidity of the stomach, which characterize this disease. The stitches in the chest, and short cough (when present) might readily have caused them to be mistaken for some affection of the chest, but the feeble pulse, the shifting of the pains, and the existence of other symptoms, proved that they were merely sympathetic.

These complaints were found only among the lower classes, the higher being, as far as my observation has extended, quite exempt from them. This circumstance would naturally lead us to refer their origin to some deficiency in cleanliness, clothing, or diet. There is none of these circumstances which marks the difference in the conditions of society, so much as the nature of the diet. In the case of the poor, it consists in a great part of

salted provisions, which are but sparingly used by the rich. An interesting inquiry would be, to determine the relative quantity of salt which is used in these two cases. Mr. M'Culloch states the whole consumption of salt in the united kingdom, to be about twenty-two pounds per annum, for every individual.* This is supposed, however, to be below the real quantity. Dr. Paris gives it, in the article of bread alone, at two ounces per week, or six pounds and a half yearly, for every individual. To calculate the particular quantity used by the poorer classes, we must throw a much larger share into their scale, on account of their diet consisting so much of salted beef, pork, fish, (herrings), and butter, articles very sparingly used in other cases. Taking into account this circumstance, we will perhaps be borne out in stating the consumption of salt for every individual, in the humbler ranks of life, to be one-third greater than the average amount. This excessive use of salt gives rise to evils, of which those who are its victims seem to be well aware, and patients labouring under the symptoms we have briefly noticed, have in many cases referred their ailments to this cause. This fact led me to consider them as possessing a *scorbutic* character, and I have always treated them as such. The entire disuse of salted provisions, and a diet of fresh vegetables and flesh meat, continued for some time, always afforded relief. By putting patients on their guard against the evil, and prescribing this regimen, I have reason to believe, not only that the unpleasant symptoms were for the time relieved, but that afterwards, by paying more attention to their diet, they have secured to themselves better health. The only medicines given was a mixture composed of the infusion of quassia with sulphate of magnesia. The use of antispasmodics and pectoral mixtures, given with the intention of relieving the palpitations, or affections of the chest resembling catarrh, hardly ever had the desired effect. So that as far as treatment was concerned,

* Diction. Commerce, Art. Salt.

the disorder in question originates from the use of salt, and also that it bears a close analogy to scorbutus. A description of the essential symptoms of this disease, as given by medical writers, will set this in a stronger light.

During the lengthened period (from the fifteenth down to the present century) that scorbutus prevailed to such a fatal extent, its causes, symptoms, and treatment, were ably investigated by many medical writers. It was supposed, that scorbutus was proteiform, that it took on all possible shapes, and was masked in such diseases as fevers, jaundice, dysentery, and scrofula. It was asserted, that it occurred frequently in a mild form, and unaccompanied by those symptoms which characterized the severer stages, and some even went so far as to affirm, that it formed a general condition in all diseases whatever.* In late times, by one of those revolutions in opinions so frequently to be met with in the history of medicine, writers of the present age keep great silence on the subject; a circumstance which would lead us to suppose, that this disease in all its forms and modifications is now of rare occurrence. We have no reason, however, to think that such is the case with this, any more than any other disease of recent appearance. The scorbutic disposition still remains, and is frequently called into action. The only change that has taken place in respect to the disease is, that it seldom occurs with aggravated symptoms, because epidemic influence and a cold moist atmosphere do not operate to the same extent as formerly. We rarely meet, now-a-days, in the milder form which still prevails, livid spots on the skin. It may be thought, therefore, that any disorder which does not possess this character, fails in an essential symptom, and cannot be ranged among scorbutic affections. The petechial eruption, however, is no more essential to this disease, (scorbutus), than a similar appearance, found formerly in putrid fevers, ought to be considered as characteristic of febrile diseases generally. These

* Sprengel *Handb. der Patholog.* Th. iii. p. 498.

forms, both diseases assumed at certain periods, when epidemic influence, and other aggravating causes, were present. By assuming as a generic character the petechial eruption, Dr. Good has been led to class purpura hemorrhagica and scorbutus under one genus. Though these diseases may agree in this one particular, they are yet very distinct in other points: such as their causes and mode of treatment. Purpura hemorrhagica, according to Bateman and Wellan, is unaccompanied with constitutional disturbance, whereas this is constantly found in scorbutic affections. To a similar error Sir Gilbert Blanc attributes the fatal ignorance of former practitioners, as to the cure of these complaints: they paid too little attention to the state of the constitution, which is the most essential character of the disease. The petechial eruption may then rather be regarded as a contingent symptom. The others given by Good are more characteristic; they are, languor, and loss of muscular strength, debility, and depression of spirits: in addition to these we have what Dr. Parr calls tensive pains in the chest and limbs, a sense of constriction in this part, with stitches or coughing. There are also different local symptoms, arising from affections of the heart and lungs, such as palpitation, dyspnœa: the appetite generally remains unimpaired: we find also the countenance pale, an offensive breath, and a spongy state of the gums. These symptoms exist in all forms of scorbutus, the mild as well as the malignant, and they are, therefore, the most constant and essential: if we compare them with the affections already described, we shall find between them sufficient resemblance to justify us in pronouncing them identical. The analogy of these two forms of diseases gives us an indirect proof, that the complaints simulating scorbutus originate from the same cause, viz. the use of salted provisions, assisted by a cold atmosphere. Of all the predisposing and exciting causes of this formidable disease, the excessive use of salt is by far the most powerful.

There is perhaps no fact in the practice of medicine so well grounded in observation; and hitherto when practitioners have been called upon to distinguish between affections resembling scorbutus, they have directed their inquiries to the cause, and if they found this to have been the use of salt, it was supposed that they then possessed a sufficient character, by which to form their diagnosis. I am aware that a modern writer, Dr. Steevens, has advanced an opposite opinion to this, or indeed to any entertained on this subject. He states, that salt does not give rise to scorbutus, nor that citric acid can in any case remedy it. On the contrary it is supposed, that vegetable acids may give rise to, and a plentiful use of salt serve as a cure for these complaints. This opinion, however, requires to be further verified. This individual opinion, however weighty, cannot counterbalance the great mass of evidence which a host of medical writers have brought forward on the opposite side. But even supposing that they were substantiated, we could escape from the dilemma, by having recourse to the doctrine of homœopathy, which teaches us that remedies act by inducing a state similar to the diseased one. And though, according to Dr. Steevens, muriate of soda should cure scorbutus, by being administered in the excessive quantity which produces this complaint, yet this would not appear more strange than our treating delirium tremens with the materials which caused this affection, wine and opium.

We proceed now to state some particulars regarding the *modus operandi* of salt, in giving rise to this train of morbid symptoms. It acts as a stimulant. That this is its mode of action, appears from the use that is every where made of it as a condiment. When employed as a therapeutic agent, it is in virtue of its stimulating properties. For this reason it is used in stimulating enemata, and in the form of a bath for producing a gentle heat over the surface of the body. This property of salt explains to us the reason why the lower animals show such an avidity for it, travelling as we are told immense distances to

saline springs, and other places containing it, for the purpose of gratifying their taste. They do so from the same principle that leads man himself to the use of stimulants. So that it would appear, the desire for stimuli for the gratification of the appetite, is not confined to mankind alone, but also influences the lower orders of animate nature. When this stimulant is swallowed, the stomach is either slightly inflamed, or greatly irritated, according to the quantity which is taken. If it be great, it will exhibit all the effects of the most violent irritant poisons. Dr. Christison relates a case of this kind, where death took place in twenty-four hours, from taking a pound of salt dissolved in a pint of ale. The symptoms were those of irritant poisoning, and the stomach and intestines, on a *post mortem* examination, presented the same morbid appearances, being found excessively inflamed.* A moderate dose may only cause a slight degree of irritation on the mucous coat of the stomach; but as this viscus is connected by means of the ganglionic system of nerves with the heart and lungs, these organs will in consequence be sympathetically affected. This sympathetic action of the heart and lungs is always developed, when substances are taken into the stomach which irritate its inner coat. When a moderate dose of salt is taken, it will produce its peculiar action, in a slight degree only, and will leave no permanent effects; but an excessive quantity, *habitually* used, and continued for a length of time, will at last end in forming a morbid state. For it is important to bear in mind a fact stated by Christison and other toxicologists, viz., that more changes are affected by *habit* on the action of the organic, than on that of the inorganic poisons. Alcohol, opium, tobacco, and other such vegetable poisons, may be taken in very large doses with impunity, provided we habituate the system to their use, by giving small doses at first, and afterwards gradually increasing them. But inorganic substances are little

* On Poisons, p. 491.

impaired in activity by the force of habit. It is even asserted by the author now quoted, that in respect to those irritants which enter the blood, (and salt is of this kind), habit rather increases their power; the stomach becoming more tender to the subsequent doses by each repetition.* Salt and other saline compounds are, as Dr. Burrows states, when cautiously used, some of the most efficient remedies in the pharmacopœia, while in large and frequently-repeated doses, they form a class of most destructive poisons.† When the slight degree of irritation originally produced, is constantly kept by the habitual use of the stimulant, serious injury will be caused, and we shall have at last formed a deranged action of the heart and lungs, giving rise to palpitations, tensive pains in the chest, dyspnœa. In fatal cases too we would expect from such symptoms to meet with appearances indicative of derangement of these organs. I have not had an opportunity of witnessing any dissection where death was caused solely by a scorbutic state, but the morbid appearances given by writers sufficiently prove this. The heart is said to be generally found hypertrophied, of a pale colour, and surrounded with a reddish serous fluid: the chest also contains this liquid, and the lungs present a blackish and ecchymosed aspect: the lining membrane of both these organs has an inflamed appearance. According to Broussais, the mucous membrane of the stomach is also found inflamed, and of a reddish hue. This fact, however, is not of so much importance as regards this particular instance, since the same thing has been noticed by this writer in fevers, and in most other diseases. It might be interesting to inquire, how far the inflammatory state of the gastro-duodenal portion of the intestinal canal, so frequently assumed, is dependent on the nature of the aliments. Were we not afraid of being accused of ascribing to the cause under consideration too many, and perhaps imaginary effects, we would suggest as highly probable, that it does,

* On Poisons, p. 25.

† Gulstonian Lecture for 1834.

in most cases, originate from this cause. At all events, it is certain, that the use of a material which is stimulating and irritating in its nature, is capable of giving rise to this phenomenon; and to a cause of such general influence, we may with great fairness attribute a morbid condition, so frequently met with by pathologists.

We have referred only to the *local* action of salt. This substance may however act *remotely*, and upon every part of the system. It may be taken up by the absorbents, and be carried into the circulation, and thus produce a stimulus on remote parts. In this way it may stimulate the inner surface of the heart and lungs, and give rise to the chief morbid symptoms and appearances already noticed. This is accordant with the high authority of Mr. John Hunter, who distinctly states, that "the blood can receive and retain extraneous matter capable of destroying the solids *by stimulating to action so as to destroy them.*"*

Salt is found always in the blood, in considerable quantity, the greater part being carried to it by the absorbents, from the ingesta. When the quantity is moderate, it can do no injury, it may even serve some useful purpose, because the blood of animals in a wild state, and who have never had access to salt is found to contain it. It appears to be produced in the system by the action of the secretory organs, in the same way as other inorganic salts contained in the body, such as the phosphates of lime and of soda, carbonate of ammonia. In such cases, the quantity of the muriate of soda found in the blood is, according to Berzelius, one-third less in quantity than in man. This extra portion which the human blood contains being no doubt supplied by the salted food which is made use of. Salt gives to the blood a gentle stimulating property, when in the natural quantity, but when carried into the blood so as to accumulate in more

* On the Blood, page 99.

than this, it produces too great a stimulus. That it acts in this way, when present in the blood, appears from the experiments that have been performed, of injecting large quantities of saline solutions into the system, by the channel of the blood-vessels, for the purpose of curing cholera. The quantity of salt injected was generally about one drachm. In the stage of collapse, this mode of treatment was found to be followed by a remission of the severe symptoms. The functions of the brain, nerves, and heart, were considerably excited, and perhaps if the disease had been dependent on mere temporary suspension or intermission in the action of the nervous functions, this plan of treatment would have answered the expectations that were at one time entertained of it, and would have been an invaluable remedy in this severe malady. The experiment shows us, however, that such a small quantity as one drachm of salt, injected into the veins, produced a temporary excitement, and proves to us the highly stimulating properties which it imparts to the blood.

There is yet another way in which salt may act, so as to give rise to diseased action, and to this we shall briefly advert. We have seen that it may act locally, by irritating the stomach, as also the heart and lungs from sympathy; that when absorbed into the blood, it may influence remote parts of the system, in a similar way. In all these cases it is the *solids* that are affected. But there can be no doubt whatever, that it produces great changes in the animal *fluids*, particularly the blood, when absorbed, and carried into the circulating system. Blood drawn from scorbutic patients is dark-coloured, does not coagulate in a firm clot, but remains dissolved, as it were, in its own serum. It has been supposed by some, that this blackened and dissolved state is caused by acid, alkaline, or saline, principles; and the nature of the change has been further particularized, by supposing, that the alteration consists in the action of these substances on the fibrin and albumen. As these are assential constituents of the blood, by being deprived of them, it may be made

unfit for fulfilling the purposes of respiration, and of nutrition. But we have no certainty on this point: chemical analysis promises some time or other to throw light upon the matter; for the changes, whatever they may be, are generally believed to be chemical. If so, they can only result from a weakening of the vital powers, for the natural tendency of the action of the solids is to resist any alteration in the state of the fluids; and it would appear, that in proportion as the solids are impaired by the irritation of stimulant substances, the blood becomes less capable of resisting the chemical action of the salt which it contains, and thus is slowly altered in its qualities. This view of the subject will reconcile the opinions of Lind and of Sir John Pringle; the former referring the primary changes in scorbutic diseases to a relaxation of the tone of the animal fibres: the latter to a gradually accumulating putrefaction of the blood, from the use of salt.

From what has been stated we may draw the conclusion, that the ultimate effect of an excessive use of salt is a debilitated state of body. Hence the constant appearance of such symptoms as depression of spirits, langour, lassitude, and want of muscular strength. We have particularized some others, occurring in cases of a scorbutic character, that have frequently fallen under our observation, and where the immediate action of salt upon particular organs was developed; in most cases, however, the effect produced may merely be a debilitated condition of the body. This in itself may not be of serious importance; but as it renders the subject more susceptible to epidemics, it may be the source of much suffering and mortality. In large towns, fevers, dysentery, and cholera, often exist to a great extent among the humbler classes, while the rest of the community are quite free from them. Bad air may predispose to such epidemics; want of proper clothing is still more likely; but the difference in the diet is that to which, by the universal consent of writers, the greatest effect is to be attributed. The facts and reasonings which we have brought forward, will enable us

to comprehend, in a general way, what this difference is. Much remains yet to be known; but it is to be hoped that the importance of the subject will attract more attention, and cause it to be more carefully investigated.*

ART. XV.—*Practical Observations in Midwifery*. By WILLIAM F. MONTGOMERY, A. M. M. D., Professor of Midwifery to the King and Queen's College of Physicians in Ireland, and Accoucheur to Sir P. Dun's Hospital.

II. Pregnancy rendered unusually obscure, by the presence of an Abdominal Tumour, of such a size and so situated as to render unavoidable the Cæsarean Operation.

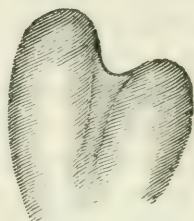
I HAVE elsewhere observed, when speaking of the signs of pregnancy, that it “not unfrequently takes place in diseased states of the system, which would *a priori* render its occurrence very improbable, and which, when it does occur under such circumstances, give rise to an unusual difficulty in recognizing its existence,”† both of which positions will be amply and forcibly verified in the details of the very important case which forms the subject of the present communication, and which will, I think, be found a most remarkable, if not a solitary instance of such an amount of disease, (independent of deformed pelvis), and so circumstanced, as to preclude all possibility of delivery being effected by any means, through the natural passages, and yet admitting of impregnation taking place, and of utero-gestation being accomplished.

* “It will be satisfactory to Dr. Mateer to learn, that views, in many respects similar to those he has promulgated in the preceding excellent paper, have been held for several years by some of his professional brethren in Dublin, and among the rest by Dr. Graves, who has published a lecture on the subject.”—EDITOR.

† See *Cyclopædia of Practical Medicine*, Vol. III. p. 491, et seq., where reference is made to several cases in illustration.

On the 17th May, 1834, I was requested to see a lady, in consultation with Mr. Hugh Carmichael. She had been married in September, 1830, and had not had any child, nor ever been pregnant as far as she knew. On the 5th April, 1833, Mr. Carmichael had been called to see her, in consequence of inability to discharge the contents of the bladder, and he then ascertained the existence of a tumour in the pelvis, which rose up into the right iliac fossa, and filled the pelvic cavity so completely as to obstruct the passage of the catheter into the bladder to such a degree, that Mr. Carmichael was obliged to use a force which nothing but the exigency of the case would have induced him to venture on, but which, under the circumstances, was absolutely indispensable; he also observed, at the same time, that the bladder was much more distant than natural from the external parts, as more than four inches of the catheter were passed, before its point entered the urinary reservoir. Her general health had been delicate, the functions of the bladder and rectum were occasionally disturbed, and she was often affected with irregular pains through the pelvis, and along the inside of the thighs, but menstruation had continued perfectly regular up to February, 1834, on the 14th of which month the discharge appeared for the last time. Towards the beginning of April her symptoms had become greatly aggravated, she experienced great general distress and debility; her stomach was excessively irritable; the tumour was more painful than usual; she got pain in the back and tooth-ach; she had also suffered a great deal from irritation of the bladder, and had had suppression of urine for several days, a short time before my visit; she also complained of a most distressing sense of pressure on the lower part of the rectum. On examination I readily ascertained the presence of an immense tumour, occupying almost the whole right half of the abdominal cavity, ascending as high as the ribs on that side, and dipping down into the cul de sac, behind the vagina, so low as to be within less than an inch of the external parts, and so complete-

ly filling the cavity of the pelvis, that it was with difficulty the point of my finger could be inserted between it and the symphysis pubis, but by no means could the os uteri be reached at all. The tumour was everywhere of a very firm consistence, amounting almost to cartilaginous hardness, and was uneven and knotty on its surface. I also ascertained very distinctly, by external examination, that there was a second tumour, more to the left, but evidently in close connexion with the former, and thus disposed.



This second tumour was not nearly so high in the abdomen, felt softer and more even on its surface; neither of the tumours was very sensitive, and there was only one spot which was tender on pressure. Her general health she considered but little impaired; her pulse was tranquil, her appetite tolerably good, and she slept well. As she complained of a good deal of pain in one of the breasts, I thought it necessary to examine these organs, and in doing so I observed what appeared to me just the dawning, as it were, of the characters which mark the areola of pregnancy, but there was hardly any prominence of the breast itself: however, on inquiry, she informed me, that naturally she had no mammary development at all, and that small and flat as the breasts then appeared, they were somewhat larger than they had been two months before. Connecting this appearance of the areola and the state of the breasts with the fact of suppression of the menses, and the period of its occurrence, and with the existence of nausea and vomitings, I thought it right to suggest to her husband and Mr. Carmichael, just the *possibility*, that these new features in the case might arise from pregnancy; adding, that I hoped it might

not be the case, as such an occurrence would be but too likely to aggravate the evils already existing. I felt bound to say thus much, from the circumstances presented to my notice, although from the immense amount of disease, I really thought the occurrence of impregnation hardly within the limits of belief. The hydriodate of potash was ordered to be used both externally and internally: the occasional use of leeches and anodynes, and mild aperient pills were directed. I did not see the lady again, until July 15, when Mr. M., her husband, called on me to say, that she had derived so much benefit from the treatment prescribed, that she was anxious to see me. On visiting her I found the abdomen considerably increased in size, and instead of its former lateral enlargement, it had become generally prominent. The hard tumour at the right side seemed smaller, while the one to the left was much larger and softer, with an indistinct feeling of fluctuation; the tumours now bore this relation as to size and height, and the umbilicus was



raised nearly to the level of the surrounding integuments. On examination per vaginam, the tumour was felt as before, rendering impossible the introduction of the finger, except by great force, and even then not more than half the finger could be introduced; I need scarcely add, that I could not reach the os uteri. I now suspected still more strongly that she was pregnant, and that the tumour to the left was a gravid uterus, of which it had very much the feel. On asking whether she had at any time lately experienced any particular sensation in the left side, she told me, that for the last week or two she had repeatedly been conscious of an indistinct sensation of very slight

motion, "as if wind had suddenly changed from one spot to another, but that she could not imagine what it was, for that she was sure it was not wind." I now examined the left tumour with the utmost care, but could not detect anything like the body or limbs of a foetus; and I may observe here, that this kind of examination was at all times rendered particularly unsatisfactory, by the extreme tension of the abdominal integuments, and of the walls of the uterus, caused by the immense solid bulk contained within the cavity of the abdomen. Her general health was now greatly improved, and she felt cheerful as to her situation: the only thing of which she complained much was the occurrence of weaknesses, amounting almost to fainting, which she frequently experienced; but these are too often the accompaniments of pregnancy to attract much attention from the practitioner. On this occasion I examined the condition of the urine, and found that it exhibited exactly the kind of deposit which I have elsewhere described.* I also examined with the stethoscope, and heard distinctly, in the upper anterior right lateral region of the soft tumour, a sound much resembling the placental murmur; I could not detect the pulsations of the foetal heart, but, as I sat by her bedside, the slight motion already described, occurred, and I felt it externally; it appeared to me such as would be produced by the movement of a very small foetal limb, but it was singularly feeble and indistinct. I thought I was now justified (indeed called on) to suggest to her the great probability of pregnancy, of which, strange to say, she did not entertain the most remote idea.

August 29.—The existence of pregnancy is now no longer doubtful, for, although I could not as yet detect the pulsation of the foetal heart, nor feel its limbs or body by external examination or pressure, I succeeded in feeling very plainly the voluntary movement of its limbs, by keeping my hand for a long time spread

* *Cyclopædia of Practical Medicine*, Vol. III. p. 490.

over the left side of the abdomen. Vaginal examination was still equally impracticable, no possibility of approaching the os uteri. I requested a consultation might be had, to determine what could be done under such circumstances, and on the 1st of September I had the advantage of Dr. Breen's very able opinion on the case, Mr. Carmichael being prevented from attending, by a professional engagement. The result of our joint consideration of the case, was a conviction, that from the totally inaccessible position of the os uteri, and the complete occupation of the pelvis by the tumour, any attempt to induce premature labour would almost certainly prove unsuccessful; and that even if we did succeed in such an attempt, delivery could not possibly be effected, there being absolutely no free space in the pelvis to admit of the transmission or extraction of *any solid body* through its cavity, without such a frightful degree of violence, as must be almost certainly fatal to the mother, without any, the least chance of saving the child; so that, under the circumstances, we gave it as our opinion, that the only resource left, was the formidable one, of the *Cæsarean operation*, when the full time should have arrived. On this occasion, as well as previously, I endeavoured, with as much force as I thought could be safely used, to dislodge the tumour from the cavity of the pelvis, by pressing it upwards, both from the vagina, and also from the rectum, but it was totally immoveable; neither could we entertain any expectation of being able to diminish its bulk by puncture, as every part of it that could be by any means reached, presented the same condition of almost cartilaginous firmness.

September 25. On this day, for the first time, I recognized the pulsations of the foetal heart, beating about 150 in the minute, and most distinctly audible in a line from the umbilicus to the upper and anterior point of the os ileum of the left side: the patient's state of health was greatly improved, she had got a little more flesh, and was able to take a good deal of walking exercise; the breasts had increased a little in size; but the characters of the areola were still very imperfectly marked, in which

state they continued throughout ; a defective development which according to my experience will be always observed in cases of pregnancy conjoined with organic disease.

October 15. Her health still improving, but on examination the tumour appeared even lower and more impacted in the pelvis than formerly, which might indeed have been anticipated from the increased weight of the gravid uterus and its contents lying above it. During the first week of November, she began to complain of loss of strength, and was much harassed for several days by irritability of the stomach, and vomiting, which distressed her particularly at night, and deprived her of rest ; attention to the state of the bowels, which had become confined, and afterwards minute doses of acetate of morphia in syrup of saffron, relieved her completely, procured her comfortable rest at night, and her appetite was restored, with relish for her meals.

November 11. I was called to see her, at two o'clock A. M., and on my arrival found that she had had a few slight pains, accompanied by a discharge of liquor amnii, but uterine action was scarcely perceptible, and there was no possibility of ascertaining the state of the os uteri ; she felt very little uneasiness and was inclined to rest ; she soon afterwards fell asleep, and slept comfortably for several hours. At nine o'clock, A. M., and twelve o'clock noon, the uterine action had not increased ; at three o'clock, P. M., Dr. Breen visited with me, and she still continued in the same state. At each visit I left strict directions, that whenever the uterine action came on, I should be instantly informed of it. At seven o'clock, P. M., I received a message stating that she was beginning to have pretty smart pains ; I immediately communicated with the gentlemen who were to give their assistance on the occasion, and a meeting was appointed for a quarter past nine, when there were present Dr. Breen, Mr. Cusack, Mr. Porter, Mr. M. Collis, and myself ; before proceeding to the operation, Mr. Cusack was requested to make an examination per vaginam, which he did, and fully agreed in the opinion previously given by Dr. Breen and me, as to the solid nature of

the tumour, and the utter impossibility of delivery *per vias naturales*. The operation was now proceeded with by Mr. Porter, who commenced by making an incision nearly coincident with the *linea semilunaris* of the left side, from about two inches above the umbilicus and extending about seven inches downwards towards the pubis; having divided the common integuments, an opening was made into the abdominal cavity, and a curved bistoury knife, previously made for the purpose, was introduced, and the peritoneum divided the whole length of the outer incision; the edges of the wound were now separated, and at the same time kept pressed close down on the surface of the uterus, which was fully exposed to view: by adopting this precaution we hoped to prevent any blood from trickling into the abdominal cavity, in which we succeeded completely, as the event showed. An incision of about five inches in length was next made into the anterior wall of the uterus, and the child was discovered lying in the natural position, but unfortunately with the *funis* rolled round the arm which lay outermost, and consequently most exposed to pressure from the contracting uterus. I immediately removed the child with its placenta and membranes; this was accomplished easily and expeditiously; but life was quite extinct. This was a source of peculiar disappointment, as the child had been felt moving actively throughout the evening, and up to a short time before the operation; it appears almost a matter of certainty that its death was caused by the accidental rolling of the cord round the arm, and its consequent compression, and interruption to the circulation. On the removal of its contents, the uterus contracted with sufficient force, but the edges of the wound instead of closing in upon each other so as to bring the cut surfaces into apposition, approached each other only by their internal edges, or those at the bottom of the wound, and next the cavity of the organ, while externally they receded from each other nearly two inches, giving the organ the appearance of a melon out of which a slice had been taken of the form of the letter V; in consequence of this, the orifices of the uterine vessels were not

so well constricted, and hæmorrhage took place, which, although not to any dangerous amount, produced delay, while we adopted means for its suppression ; otherwise the operation would have been very speedily completed ; the removal of the child and its appendages was accomplished within four minutes from the time of making the first incision ; there was no escape of intestine during the operation, a very small fold with a portion of omentum descended at one time, but was immediately and easily replaced, and gave no further trouble. As soon as the hæmorrhage was arrested, the integuments were brought together, and secured by ligatures, and strips of adhesive plaster ; the application of a compress and binder round the body completed the operation, every part of which, I need hardly observe, was performed with all the coolness, precision, and dexterity, which have so deservedly earned for Mr. Porter his high reputation as a skilful operator, and scientific surgeon. The patient bore the operation with the most admirable calmness and fortitude, without making a single complaint, or uttering a single expression indicative of impatience or pain ; and when it was over she said merely, that she felt very sore : soon afterwards, however, she became very restless, and anxious to change from side to side ; this yielded to the administration of an opiate, and she became tranquil. About three hours after the operation, there was some secondary hæmorrhage, which although not considerable in quantity, yet in addition to the loss previously sustained, reduced the strength of the patient, and brought back the restlessness, which, however, soon subsided under the influence of a repetition of the opiate, and she fell asleep. At eight o'clock next morning she expressed herself as feeling very easy, although very weak, and with a very feeble pulse ; she wished for some tea, which she took. At twelve o'clock, when Mr. Porter and I saw her, together, she was so low, and the pulse so very feeble, that we recommended melted jelly and wine in equal parts to be given, and strong beef tea, of both of which she partook several times in the course of the day, but there was no rally from the state

of depression which was gradually increasing ; at four o'clock P. M. the pulse was hardly perceptible, and the hands and feet were cold ; she continued to sink gradually and quietly until half past seven o'clock in the evening, when she expired almost without a struggle, just twenty-one hours and a half after the operation.

Permission having been obtained to open the body, the examination was made at twelve o'clock next day by Mr. Porter, Mr. Collis, and myself, with the assistance of Mr. William Day. There was no tendency to reunion of the wound in the integuments, and the same may be said of the incision into the uterus. On turning aside the abdominal coverings, the tumour came prominently into view, rising up out of the pelvis and occupying the right half of the abdomen as high as the ribs of that side. The uterus lay to the left, but was lifted completely out of the pelvis, so that even the os uteri was altogether above the brim, and pointed towards the abdominal ring of the left side ; the bladder, also, had undergone a similar change of place, and the cavity of the pelvis was so entirely occupied by the tumour, that the point of the finger could not pass into it from above. The upper half of the tumour was quite unattached to any of the surrounding parts except the uterus, and Mr. Porter, by drawing this part of it forwards over the symphysis pubis, raised the whole mass out of the cavity of the pelvis, to the peritoneal lining of which the tumour was attached by several membranous bands, apparently the result of inflammation ; the vagina was cut across and the parts removed. The morbid growth was now at once recognized to be a fibrous tumour growing from the substance of the uterus, and covered with the peritoneum, which naturally forms the investing membrane of the latter organ ; it had sprung from the posterior surface and right side of the uterus ; the part of it which formed the medium of attachment, measured between nine and ten inches in circumference, and occupied nearly one-half of the whole length of the organ, comprising the upper part of the cervix, and the

greater part of its body. In form, the tumour was kidney-shaped, with its concave edge towards the uterus; its length was between eleven and twelve inches, and its average breadth five and a half: the portion of it which was embedded in the pelvic cavity was of greater dimensions than any other part, measuring transversely five and a half inches, from before backwards five, and in depth four and a half inches, and *its circumference in that situation sixteen inches*, while above the cavity of the pelvis, its thickness did not amount to four inches, and its circumference did not exceed fourteen: from this circumstance, conjoined with the fact already ascertained, that the tumour had grown from the posterior part of the cervix and body of the uterus, as well as from the history of the growth of such tumours generally, it appears perfectly plain that the first growth of the tumour must have been in the cul de sac, between the rectum and vagina, where it formed several superficial adhesions with the surrounding pelvic peritoneum, which of course fixed and detained it in that situation, where it continued to grow until it had completely filled all the space there afforded; when its further increase was accommodated by its rising into the abdominal cavity, carrying with it the uterus, of which it was a part, and also the bladder.* The parts as removed weighed nearly ten pounds, so that the tumour must be about eight pounds in weight; its external surface was very vascular, containing vessels as large as a goose-quill, passing into it from the uterus; its consistence was remarkably dense and solid to the touch, and when cut into, its structure was found to be strictly fibro-cartilaginous; the *corps fibreux* of the French pathologists, or that species of tumour to which Baillie has ap-

* In a very valuable and instructive paper by Dr. Ingleby, inserted in the present number of this Journal, there are (p. 341, *et seq.*) some very apposite remarks on the subject of these fibrous tumours as connected with pregnancy and labour, and a highly interesting case is detailed in illustration; some of the particulars of which strikingly resemble those under our present consideration.

plied the name of fleshy tubercle. The knife did not encounter any bony spiculæ, which are so frequently met with in such structures; there were two or three small cells in the centre of that part of the tumour which lay opposite to the promontory of the sacrum. It seems remarkable, that with a tumour of such dimensions occupying the cavity of the pelvis, the bladder and rectum could have performed their functions even so well as they did: but in fact the bladder was raised altogether out of the pelvis, and so escaped much compression; and the part of the pelvis in which the rectum is lodged, was less occupied or pressed on by the tumour than any other part of the pelvic cavity, which I should observe, was rather above the ordinary capacity; for the tumour being principally confined to the right side, to which it was attached, its greatest measurement of five and a half inches coincided with that oblique diameter of the pelvis, and its lesser measurement, of five inches, with the opposite one; so that the rectum lying at the extremity of the latter, was less interfered with than it could be under any other arrangement. It is very remarkable, and sometimes appears quite inexplicable, how tumours of a solid structure, embedded in the pelvic cavity, can acquire such a size in such a situation, and yet interfere so little, as they sometimes do, with the action of the bladder and rectum. I had once a patient affected with fibrous tumour, springing from the back of the uterus, which acquired such a size, that it pressed up the diaphragm above, while its inferior extremity was literally wedged into the pelvis: the tumour weighed thirty-two pounds,* and yet the unfortunate subject of the disease experienced little or no difficulty in the discharge of either urine or fæces. In the instance under consideration, more of this kind of inconvenience appears to have been experienced before the occurrence of pregnancy than afterwards; for when Mr. Carmichael was called to see

* An accurate cast of this tumour is preserved in the writer's museum. See prep. No. 59.

her in April, 1833, it was in consequence of retention of urine, caused evidently by the pressure of the tumour, and he then ascertained that she had been previously several times similarly affected. Whether the tumour may have increased much in size after the occurrence of pregnancy, or not, I am unable to determine, never having seen the lady until 17th May, when, as the event proved, she was about three months pregnant; at that time it completely filled the whole cavity of the pelvis, and that it did so long before, is very evident from the facts ascertained by Mr. Carmichael, on the 5th April, 1833, (that is more than thirteen months before I first saw the lady), at which time he found the utmost difficulty in passing a small silver catheter along the urethra, so completely was it jammed in between the tumour and the inside of the pubis. From the distance to which he was obliged to introduce the instrument, before its point entered the cavity of the bladder, it is also plain that the latter organ had even then been displaced from its natural situation, by the great bulk of the diseased growth, and elevated into the cavity of the abdomen, as we found it on examination; and having during my attendance repeatedly made the most careful examination of the tumour, I could not detect any extension of its boundaries. But in fact, there is distinct and decisive evidence of the existence of the tumour at a much more remote period; for from a circumstance which came under Mr. Carmichael's notice at the time, and from others detailed to me, it is quite certain, that the disease was fully formed, and greatly obstructed the pelvis at the time of marriage, which took place more than four years ago. The irregular form in which the uterus contracted, appeared at once explained by a reference to the kind and extent of connexion which was found to exist between that organ and the tumour, because it appeared quite reasonable to infer, that the fibres of the uterus, when contracting, would of necessity act at each side towards their point of attachment with the solid, weighty, and immoveable tumour; but on reference to the

details of the operation performed at Belfast,* I find that the very same thing occurred without the co-existence of any such cause. It is satisfactory to know, that the precautions adopted to prevent the trickling of blood into the peritoneal cavity during the operation had been completely successful, as on opening the body there was not a drop of blood effused among the intestines. I have only to add, that from the first time that I had reason to think pregnancy probable, which was at my second visit on the 15th July, when, as the event proved, it had been in existence five months, although still a matter of very great doubt, I considered most intently the propriety of attempting to induce premature labour; and having carefully assured myself of the condition of the parts concerned, I abandoned all such intention, from a deliberate conviction, that as a resource it presented no hope of success, and for the reasons already stated, namely, the totally inaccessible position of the os uteri, and the entire closure of the pelvis by the tumour, leaving as I then thought, and as dissection fully proved, no space through which premature delivery even at a much earlier period could be effected, without a degree of injury and violence which must have entailed a lingering, and painful death on the mother, without a possibility of saving the offspring; and now that we are in full possession of all the facts, I am the more fully satisfied that the conclusion then come to was well founded: and I am happy to be able to add, that in this opinion both Dr. Breen and Mr. Carmichael are fully agreed.

* See Edinburgh Medical and Surgical Journal, for April, 183L.

BIBLIOGRAPHIC NOTICES.

Descriptive Catalogue of the Preparations in the Anatomical Department of the Museum of the Royal College of Surgeons in Ireland. By JOHN HOUSTON, M. D., M. R. I. A., Curator of the Museum, &c.—Dublin, Hodges and Smith, 1834.

WE rejoice to have received this important work, which, professing as it does to describe the anatomical preparations in the noble museum of the Irish College of Surgeons, demands a peculiar notice. By the formation of this catalogue, the value of the collection is prodigiously increased, for this is not a mere list of names, or even a bare descriptive catalogue, but combines the principles of a physiological arrangement. It leads the mind of the student to general views: and shews him that anatomy is one science, as wonderful in the lowest animal as in man, and its own illustrator. We confess that early recollections bind us to this museum. Here we first met its enlightened and amiable founder, whose astonishing devotion to science, untiring industry, and amiable heart, commanded the love and respect of all. His premature death deprived anatomy of one of her most promising votaries;* but he was spared long enough to establish a taste for the higher branches of science, and to begin the removal of that system which put forward a partial, and narrow, and even frivolous species of knowledge, and called it anatomy. His labours in comparative anatomy were among the first in this country: with his own hands he made a vast number of preparations, and in his own person demonstrated the errors of those who would limit science, and estimate her

* Mr. Shekleton's death took place in May, 1824, in consequence of a dissecting wound, received in the examination of a subject who died of peritonitis. The particulars of the case have been published by Mr. Colles in the fourth volume of the Dublin Hospital Reports.

value by the proceeds in pounds or pence. Comparative anatomy is becoming a favourite science in Dublin. The lectures of Professors Jacob and Harrison, in the theatre of the College, and of Dr. Hart in the Park-street School of Medicine, and the labours of the author of this Catalogue shew, that the seed has not fallen on unfertile ground, but that it has already produced an abundant harvest.

In the execution of this extensive and laborious work, Dr. Houston had a difficulty *in limine* to contend with, namely, the adaptation of a Catalogue, so that it could be indefinitely extended, to meet the continual increase of preparations. In this object he has fully succeeded.

"In a museum, the several sections of which are so far completed as to require few or no farther additions, little difficulty on this head would be experienced: the ordinary mode of arrangement by numbers, from units consecutively to thousands, would serve every purpose; but in a collection, each and every section of which is continually on the increase, and in which the numerous additions are to be received into their respective places on the shelves, and arranged under their appropriate letters and numbers of reference in the catalogue, without any violation of order in either the one or the other, such mode is evidently inapplicable.

"The insufficiency of this as well as of several other systems proposed to render the same catalogue suitable to the museum in the advanced as well as in the early state, to preserve the appliance of the one to the other, under any circumstances of increase or diminution, has led the present curator of the museum at Dublin, to the adoption of a somewhat new plan.

"In the anatomical department, all the preparations are arranged in eight classes, which are severally distinguished both in the catalogue and on the presses by letters of the alphabet in roman characters.

"The first class, distinguished by the letter A, contains all the organs concerned in the assimilation of food.

"The second by B, contains the organs of circulation.

"The third by C, the organs of respiration.

"The fourth by D, the organs of sense.

"The fifth by E, the organs of locomotion and prehension.

"The sixth by F, the organs of generation and secretion of urine.

"The seventh by G, monsters of all kinds; and

"The eighth by H, contains specimens in natural history, illustrative of some peculiarities of organization.

"These classes are again subdivided into orders, the numbers of which vary with the most convenient subdivisions which each admits of, and are distinguished by letters in italics. Thus the first class embracing all the series of organs concerned in the assimilation of

the food, and distinguished by the roman letter A, admits conveniently of subdivision into four orders.

"In the first, marked *a*, are contained those parts of the alimentary system, which, in the form of preparations, can be most conveniently grouped and exhibited together, viz. the mouth, tongue, pharynx, and œsophagus.

"The second order *b*, contains preparations of the stomach.

"The third *c*, those of the intestines.

"The fourth *d*, the glands connected with the intestines.

"The same mode of subdivision into orders, and of marking by appropriate letters in italics, is observed throughout the other classes. (See table, p. 9.) The preparations of human and comparative anatomy are placed side by side throughout the museum, and are arranged in the several orders to accord with the classification of Cuvier, as adopted in his *Leçons d'anatomie comparée*. Those of man are placed first in the scale; next, those of the quadrumana, which are followed in order by preparations of the carnivora, rodentia, &c. down to the lowest tribe of animated beings, the zoophytes.

"To a student, therefore, wishing to avail himself of the information to be gleaned from the study of this collection, it will be necessary, beforehand, to make himself acquainted with the mode of classification on which the arrangement is based; and to facilitate this object for him, an abstract of the classification spoken of is subjoined at page 10-11.

"The application of figures to assist in the arrangement is managed thus. Each of the eight classes is furnished with a distinct series of numbers, which run continuously throughout its several orders; and on purpose to receive the additions which may from time to time be made, blank spaces are left, opposite many of the figures in the index of the manuscript catalogue, averaging the number which may be required to complete each series.

"The same letters which distinguish the class and order of each object in the catalogue, with the figures betokening its number, being also marked on the most conspicuous part of the preparation, the latter can be readily discovered on the shelf—and the preparations being themselves moveable, they can be shifted from place to place, to make way for future additions, with a preservation of due correspondence throughout between the catalogue and museum.

"The book is divided into two equally essential parts—the index placed at the end, and the descriptive part. The index contains a brief list of all the preparations in the museum, and demonstrates as nearly as possible the order of their arrangement on the shelves; it also indicates the page in the descriptive division of the work, at which any further notice taken of particular objects may be discovered."

It is obvious that to attempt the writing of a detailed review of such a work as that under consideration, would be impossible.

We shall content ourselves with selecting certain parts for notice, which may serve to show the style of the work, and convey some interesting information. Of the different portions of the collection, that devoted to the anatomy of the circulating system seems most complete, consisting of nearly 300 specimens; and we shall make our first extracts from this portion of the Catalogue. Here we meet with one of those wonderful contrivances, those adaptations of means to end with which comparative anatomy so much abounds; and as this subject seems to have been a favourite with our author, we shall follow him out in his researches.

The existence of a double heart, warm blood, and an active innervation, implies a corresponding respiration, which cannot be interrupted for any length of time without producing death by asphyxia. But we find among the vertebrated and warm-blooded animals, a class in which the temporary suspension of respiration is a necessary result of their mode of life, as we see to occur in the whole tribe of warm-blooded diving animals. Thus the whale, the seal, the porpoise, the otter, and the diving birds, present examples of this. Here so long as the animal remains under water, the mechanical, chemical, and vital acts of respiration are suspended, and were it not prevented by some special provision, the accumulation of blood in the venous system must be injurious. In order, however, to obviate such accidents, a beautiful provision is adapted, consisting, first, in the existence of what may be called a supplementary or additional venous apparatus; second, in the increase of volume of certain of the internal trunks; and thirdly, in the formation of vast reservoirs communicating with the venous system, and which receive the blood during the stoppage of respiration. The discovery of this curious apparatus is not new to comparative anatomists: but our author has the credit of first demonstrating its existence in many animals; and also in showing, that the amount or extent of the apparatus, was proportioned to the length of time the animal usually remains under water. We shall insert some of his descriptions.

“B. c. 379. A dried injection of the heart and blood-vessels of a seal (*phoca vitulina*)—the arteries red, the veins yellow. There is nothing very remarkable in the distribution of the arteries; their size is, however, somewhat diminutive. The whole venous system presents a most singularly striking exhibition. The vena cava abdominalis is of very inordinate size: the venæ hepaticæ which join the former near the right auricle of the heart are dilated into vast reservoirs for the blood: the veins in the spinal canal, extending its whole length, and two in number, were of such a size when injected, that in

order for the exhibition of one, the other was obliged to be removed : on the back part of the neck there is a mass of huge vessels, coiled and twisted together in a very unique manner.—J. H.

“B. c. 380. An injected preparation showing the vena azygos, with some of the rachidian and cervical veins of a seal (injected green). The azygos is very large, being the channel through which the blood of many of the great veins in the neighbourhood is conducted to the vena cava superior.—J. H.

“B. c. 381. The blood-vessels, gall bladder and ducts of the liver of a seal injected and dried. In this preparation the great disproportion between the venæ hepaticæ and the other vessels of the liver is well shown. The hepatic artery, filled with red wax, is very small and divides into two at the place of its junction with the liver ; the vena porta, injected green, bears the usual proportion in size to the artery ; the venæ hepaticæ, to be known by the yellow wax, appear as a great bag with three projections from it representing the off-sets from the bag which passed into the lobes of the organ. The gall bladder and its ducts are small.—J. H.

“B. c. 382. A wet preparation of the liver of a seal, showing the dilatations formed in its substance by the hepatic veins—dilatations which extend to the extremities of its lobes.—J. H.

“B. c. 383. The heart and principal blood-vessels of an otter (*Lutra vulgaris*) injected and removed from the body. The preparation shows a dilatation in the hepatic veins like that in the same vessels of the seal, though not to such an amount. The venæ cavæ and innominatæ exhibit a like tendency to enlargement.

“These great dilatations in the venous system leading to the pulmonary cavities of the hearts in these animals serve, no doubt, the purpose of temporary reservoirs for the blood, when prevented passing on freely through the lungs during the long continued periods of submersion to which the animals are accustomed.—J. H.”

But the same provision, as might be expected, is found in the diving birds, a fact first noticed by our author :

“B. c. 407. An injected preparation showing the circulation in the great northern diver (*Colymbus arcticus*). The vena cava abdominalis is vastly dilated, and near its entrance into the right auricle forms a distinct bag, larger than that of the auricle itself. The venæ hepaticæ are very much wider than they are ever found in birds not accustomed to diving.—J. H.

“B. c. 408. A dried preparation of the heart and blood-vessels in a gannet (*Anser basanus*). In the gannet, which nearly equals in size the diver, there is not that inordinate dilatation of the great veins leading to the heart, so remarkable in that bird. Although the gannet lives on fish, its food is taken by a mode different from that adopted by the diver. Like the eagle, it pounces suddenly on its prey from a height, when discovered near the surface of the water, and then carries it up to some dry spot, impaled on its strong, sharp bill.

It is not habituated like the diver to lengthened stoppages under water, and stands not in need of those provisions, so amply given that bird by nature, to obviate the derangements which its circulating and respiratory organs might be exposed to, during protracted efforts of submersion.—J. H.”

Our admiration of this beautiful provision will be increased, when we reflect on the consequences of its absence in man—a being never intended for long submersion. But when from disease the circulation either in the lung or the right side of the heart becomes interrupted, we then find that the condition of the *venæ cavæ hepaticæ* represents, to a certain degree, their natural state in these animals during submersion. They become turgid, enlarged, and the congestion extends to the liver; but as no provision has been made for such an occurrence, this organ swells by congestion and the vessels relieve themselves by pouring out their serum. Dropsy results, and continues until the obstruction is removed, when it disappears, but certainly to return on every renewal of the central obstruction. Here the effect of disease is exactly that of a prolonged diving; and as there is no apparatus for the reception of the blood, its accumulation becomes a source of evil. Before leaving this subject, we may remark, that those physiologists who are disposed to adopt the doctrine of Serres, namely, that in many cases disease in man only represents or reproduces the normal state of organs in lower animals, might find in the state of the hepatic circulation, in cases of obstruction of the pulmonary heart, some analogy to the venous development of the amphibia and cetacea.

Among the preparations more particularly interesting to the operative surgeon, we might notice those of the irregularities of arteries, of which a good many are described. We cannot leave this subject, however, without observing, that the fact first noticed by our esteemed friend, Dr. Hart, that in cases where the right subclavian arises from the aorta, running behind the trachea and œsophagus to the axilla, the recurrent nerve does not as usual wind round the vessel, but arising from the pneumo-gastric, about the middle of the neck, runs directly inwards, to enter the lower part of the larynx, is in this collection verified by two remarkable preparations.—(See B. c. 333, and D. a. 4.)

We must also allude to the important preparation, B. c. 346, which exhibits that singular variety in the femoral artery, namely, its bifurcation a little below the origin of the profunda; and the formation in this way of two branches of nearly equal size, which run parallel and close to each other, as far as the opening in the triceps, where they again unite to form the

popliteal artery. Each of these vessels, as we read in the description which the author published in the 4th volume of the *Dublin Hospital Reports*, was enveloped in a distinct fibrous sheath, so that an incision exposing one, would not have brought the other into view. One other instance only is recorded of this irregularity. The case is given by Sir C. Bell. The patient laboured under popliteal aneurism, and the operation was unsuccessful, as the other vessel continued to convey blood to the tumour. The possibility of this occurrence is noticed by Dr. Houston in the first description of the preparation.

The following description will interest the advocates of cutaneous absorption: it reminds us of a case which we heard of in the period of our pupillage, relating to a lady who had suffered from obliteration of the œsophagus, and who was supported by an application of tea and bread and butter to the epigastrium in the morning, and a beef steak or mutton chop at dinner time. At these times she felt hunger, and the skin assumed a vascular appearance; both of which circumstances disappeared after her singular meal.

“A. b. 621. The posterior half of a leech which lived and moved for a period of ten months after being separated from the anterior part of the body. The animal, after abstracting blood from a patient, was accidentally broken into two during the process of emptying the stomach of the engorged blood: the posterior half being found alive, after some days, in the basin into which it had been accidentally thrown, it was taken up and preserved carefully in a glass of water: for some time the water became tinged with the blood which oozed from its lacerated body, but by degrees a perfect cicatrization was accomplished, without leaving a trace of the smallest aperture by which either nutriment could have been imbibed or fluids discharged; and, nevertheless, the nutrition and powers of motion of the animal continued in perfect and full operation. It increased considerably in size, and moved about the cicatrized extremity of its body with great agility in water, while sticking by the sucker of its tail to the inside of the glass in which it was preserved. This leech was given to me by Mr. Roche shortly after the accident which deprived one half of its body of life, and was preserved in my possession during the remainder of its demi-existence. Its death arose from neglect in not changing sufficiently often the water.”—J. H.

The comparative anatomical preparations in this museum are singularly numerous and beautiful; and when we consider the limited opportunities which have been enjoyed in Dublin for the prosecution of this department, it seems strange that so much could have been done. Lately, however, the establishment of our interesting and beautifully situated zoological gar-

den has been the means of supplying scientific anatomists here with many interesting specimens. We are happy to observe, that the College of Surgeons has not neglected this opportunity of adding to the riches of its museum. Many most interesting preparations have been obtained from this source by the present curator; and we may hope, that this most important advantage will never be lost sight of. Among many observations on preparations thus obtained, we shall quote the following, as possessing considerable interest to comparative physiologists: it is contained in a note upon the description of the duodenum of the ostrich.

“In an ostrich lately dissected at the College of Surgeons, the relative lengths of the small and large intestines were as follows:

“From the stomach to the cæca, 17 feet.

“From the cæca to the cloaca, 28 feet.

“The length of each cæcum, $2\frac{1}{2}$ feet.

“In the *Leçons d'Anatomie Comparée*, T. 3. p. 469, the Baron Cuvier has stated, that in all birds the portion of intestine between the insertion of the cæca and cloaca is shorter than that between the cæca and stomach; and in the tables of the comparative lengths of the large and small intestines, (p. 456), has left a blank in the measurement opposite the ostrich's name, showing evidently, that he was unacquainted with the fact, that the ostrich offers a striking exception to the rule laid down by him.”—J. H.

The following description of the apparatus for moving the nictitating membrane is so interesting, that we shall insert it at length.

“D. b. 379. The eye of an ostrich, preserved unopened. Independently of the view which the preparation exhibits of the general form of the organ, its muscles, and the relative proportions of its several parts, a demonstration, such as rarely offers, is given of the membrana nictitans, and the beautiful muscular provision by which the movements of the membrane over the cornea—movements so rapid as to be almost imperceptible, are accomplished. The membrane is of a semilunar shape: it is attached firmly to the sclerotic coat, by one corner and by a part of its convex border; at the opposite corner, and all along the concave margin it is perfectly unrestrained in its movements. It is elastic, and semi-transparent, allowing a certain degree of vision through it, when drawn over the eye. It is in virtue of this membrane that the eagle can gaze on the sun. The muscles by which it is moved are two in number; the first, the *quadratus*, is fixed by one end to the upper part of the eye, and by the other, which has no fixed attachment, it forms a cartilaginous pulley near the entrance of the optic nerve, for slinging the long tendon of the second muscle, called from its shape *pyramidal*. This *musculus*

pyramidalis is likewise attached to the nasal side of the globe of the eye by its fleshy extremity, and tapers at the other, into a tendon, which after making a turn about the optic nerve, passing through the pulley in the quadratus, and running thence for a long distance in a groove on the sclerotic coat, ends by being inserted into the moveable corner of the membrana nictitans, after a sweep of more than half a circle, and in a direction highly favourable for exerting a sudden and extensive movement in the membrane.

"The simultaneous action of the two muscles on the tendon—the *pyramidalis* drawing it in one direction, and the *quadratus* by its pulley in another, at right angles with the line of the former, must exert a great force on the curved tendon, and by its means draw the membrane rapidly over the eye. The return of the membrane to its place at the inner corner of the eye is effected by its own elasticity."—J. H.

In this section we observe several preparations illustrative of the development of the brain in cartilaginous fish. On examining one of those in the museum, we could not help exclaiming, alas! for the pure phrenologists; here is the cranium of the spiny shark (*squalus spinosus*), in the centre of which we observe the brain bearing somewhat the same proportion to the cranium, that the oscillating lamp, which is suspended in the cabin of his majesty's steam packets, bears to the cabin itself. The brain in these animals is supported or slung in the centre of the cranial cavity, by an exquisitely beautiful reticulated membrane, bearing a resemblance to the threads of silk which form the silk worm's cocoon. Could the shape of this brain be divined by that of the cranium? Where would destructiveness be found? We hesitate not to declare, that the doctrine of the pure phrenologists is a continual error. At best a science of size only, the "*ceteris paribus*," which is their favourite scape-goat, is after all their condemnation, as this implies circumstances, of which they must ever be ignorant, and which are infinitely various, and more important than size. Original organization, and those cerebral sympathies with remote organic excitements, will produce phenomena, both mental and otherwise, on which size has little influence. Can the non-physiological phrenologist know aught of these? The low state of the science, however, should open the eyes of its votaries, and teach them that they have been too long advocates; and that it is now time to become inquirers.

It is obvious, that these notices could be prolonged to any extent; but our space forbids what our inclination would desire. The descriptions of the human anatomy are excellent and interesting, and being connected so closely with those of the comparative anatomy, will do much towards leading the student's mind to the latter study. We would have wished to have

noticed those preparations which the author has shewn to illustrate several new points of anatomy, such as those of the musculi compressores venæ dorsalis penis, and the valvular structure of the rectum. We regret this the less, however, as Dr. Houston has published his views and discoveries already in the *Dublin Hospital Reports*, and in the ninth number of this *Journal*. On the latter subject it may be remarked, that the anatomical structure of the rectum is, after all, the great point on which the question as to the feasibility of passing a tube into the colon turns. On this subject we have made many observations, both on the living and dead body, and from these experiments, we must declare, that we look upon the existence of valvular projections in the cavity of the rectum, in many cases quite sufficient to arrest the progress of a bougie, to be as well proved an anatomical fact, as that the rectum is continuous with the colon; or that the intestines present the valvulæ conniventes.

The last of our extracts shall relate to one of the most interesting preparations in this museum, namely, that of the general transposition of viscera. We shall first give the description.

“B. b. 100. A rare specimen of transposition of the heart, and of all the other organs in the human body. The case was that of an elderly woman who died of fever, in the Richmond Fever Hospital: she had been a woman of good constitution, and the mother of several children, but of whose history nothing could be learned. Respecting herself during life-time, no remarkable circumstance had ever attracted attention, and it was only by accident in proceeding to an examination of the body after decease, that the peculiarities of her frame were discovered.

The cavities of the heart are completely transposed; those which customarily lie on the right side occupy in this instance a place on left, and vice versa those whose natural position is the left, are here found on the right. The pulmonary cavities of the heart are filled with blue, the systemic with red injection: the base of the heart looks upwards and to the left, the apex downwards and to the right, where its pulsation must have struck between the cartilages of the fifth and sixth ribs: the venæ cavæ, though so far out of their usual place, are of the ordinary size, and formed by the common coalition of venous trunks. The pulmonic auricle and ventricle are here the left cavities, and the pulmonary artery, in its course from the upper and right corner of the ventricle to its bifurcation near the roots of the lungs, is placed along the right side of the arch of the aorta: the systemic auricle and ventricle are in this instance the right cavities: the aorta makes its arch to the right, and descends in the thorax along the right side of the vertebral column, and even in the abdomen, down to its bifurcation in the iliaes, it holds the same unusual position. The inferior vena cava lies for its whole length to the left of the aorta, and in front of the bodies of the vertebræ. Three arteries arise as

usual from the arch of the aorta, but the order in which the extremities receive from them the blood is reversed; the left arm and the corresponding side of the head are first supplied from the arteria innominata; the right side of the neck, and the right arm, receive in succession the blood conveyed by the carotid and subclavian arteries, which have separate origins from the arch. The right vena innominata crosses above the arch of the aorta, and joining the left at the left side of the arteria innominata, forms with it there the commencement of the vena cava superior.

“The œsophagus is placed along the posterior and right side of the trachea. The stomach is shown lying in the right hypochondrium, and the vessels which supply the liver in the left. The cæcum occupies the left iliac fossa, and the sigmoid flexure lies in the right, terminating there in the rectum, the position of which, as regards the sacrum, is in accordance with the other irregularities. In making the dissection it was noted that the misplacements of the spleen, pancreas, and other organs, were of the same character, and equally complete as those exhibited in the preparation.”—J. H.

We have inserted this description at length, because it is, as far as we know, the most complete observation of this curious malposition that is on record. The fact of transposition of the viscera has been long known; and in our own time has been made the subject of discussion by various inquirers into the anatomy of formation. But they seem to have thrown but little light upon it. The formulæ of arrest or excess of development, do not apply here. Organs we are told are formed primitively on the mesian line; but why this transposition occurs we know not. Is it really a transposition, or an original formation, connected in some way with the relations of the umbilical arteries with the embryo? Further observations are necessary to clear up this obscure point.

To come, however, to more practical considerations. It appears that the existence of this transposition does not apparently interfere with the functions of life, as in the majority of cases on record the individuals were adults, and had enjoyed good health, so as to enable them to fill various situations in society, and in the case before us the woman had borne several children.

One of the earliest authors who have noticed this malformation, is Schenkus, in his book published in Frankfort, A. D. 1600, and entitled, *Observationum Medicarum, Rararum, Novarum, Admirabilium, et Monstrosarum, tomus unus*:—*Semel vidi hepar in sinistris, lien in dextris collocari. Idem, Cyglonom. lib. 2, pag. 75. Et Cosmocrit. lib. 1, cap. 6, Cur (inquit) stupeant homines si (quemadmodum a vobis inter annotationes plurimas annotatum est) in nonnullis occurrit situs partium perversus plane ut hepar in sinistro hypochondrio, lien in dextro collocetur.*

Reserebat excellentissimus Aqua pendens sese corpus cujusdam Molitoris Patauji secuisse, in quo inversum a natura hepatis et lienis situm quodam quasi miraculo observasset, lienem scilicet in dextro hepar vero in sinistro latere collocatum. D.D. Petrus Spererius de Observat. Patauio ad me missis. Obs. 9. lib. 3.

In the work of Riolanus,* published in Paris, in 1649, we read of several cases communicated to him by others. Thus Dr. Bedeau relates the case of a counsellor of Brittany who died of scarlatina: *Cordis basis sub sinistra mamma reperta mucrone sub dextra locato: quod laborans, febre pluribus annis ante obitum correptus; palpante regionem cordis chirurgo, prophetice quasi visus est animadvertisse, quarenti prædicto chirurgo palpitationem, de qua conquerebatur, sub sinistra mamma, quem ut ad dextram se converteret mammam, monuit, dicens se non ut cæteros alios esse compositum.* The liver was found here on the left and the spleen on the right side.

Riolanus also details another case communicated to him by one of his colleagues, of an infant aged sixteen months, who we could suppose was the child of the counsellor, but that we are told of his inability to be a father; a fortunate circumstance, as preventing the multiplication of such cross-grained lawyers. But although these cases were communicated to him by his friends, Riolanus is still in doubt. *An quibus cor rite salit circa mamillam dextram, talis inest confirmatio, dubitare licet? Nihil affirmo, quoniam id not satis liquet.*

We read in the Transactions of the Medical Society of Paris, a case of very general transposition in a child of nine years of age. The apex of the heart looked downwards, and to the right side, and the aorta and œsophagus lay at the right of the vertebral column. The right carotid arose at once from the arch of the aorta, and the left from the subclavian. The lungs seemed reversed, the right consisting of but two, while the left presented three lobes. All the abdominal viscera were likewise transposed; the cæcum occupied the left iliac fossa, and the rectum was directed towards the right posterior portion of the pelvic cavity.

The last reference on this subject which we shall make is to the case published by Næguart and Piorry, in 1820.† In this instance the child, aged six years and a half, died of croup. The transposition was universal and complete.

The early part of the seventeenth century seems to have been prolific in this singularity of conformation. Perquet re-

* *Raræ Observ. Anat. Op. Anat.* Paris, 1649.

† *Journal Général de Médecine*, Juillet, 1820.

lates, that on examining the body of a man who was executed in Paris, in the year 1650, the base of the heart was found looking towards the right side. "*Extrema autem quæ in mucronem turbinantur et abeunt dextram subter papillam, in priora thoracis demergebantur; Κοιλίας, seu specus, quos quidam non inepte diribitoria* nominat, locorum quisque suorum vices converterant; adeo ut dexter, isque venosus, sinistrum cœpisset, lævus et ille arteriosis ut dextrum.*"†

We have inserted this last observation, as it so completely agrees with the description of the preparation under consideration, as given by the author. Thus in two cases at least not only was the situation of the heart changed, but that of its cavities was reversed, the venous or pulmonary heart being at the left; the arterial or systemic at the right side of the organ.‡

Our regret at parting with the learned, zealous, and accurate author is diminished, from the hope of meeting with him again on the completion of the pathological portion of the Catalogue; a meeting to which we need not say that we look forward with sincere pleasure.

W. S.

Clinique Medicale. Par G. ANDRAL, Tome v. Maladies de l'Encephale. 8vo. pp. 736.

CONSIDERING the importance of the subject, and the admirable manner in which it is treated, we are disposed to regard this volume as the most valuable of the series of '*Clinique Medicale*,' by this accurate and indefatigable author. It contains a very great number (112) of the most interesting and important cases, including every variety of disease of the brain, written in a clear, simple, unpretending style, but conveying such striking pictures of disease, and such vivid descriptions of the pathological appearances, as to bring them forcibly before the 'mind's eye,' strongly fixing the attention, and never once allowing the tedium so common in reading most cases, to be felt. But this is only a part of the merit of this excellent work, the

* Testa derives this word from *diribeo*, *distribuo*, in *diversas partes jacio*; from whence *diribitores*.

† Experiment. *Novæ Anat.* Paris, 1654, Epist. 8.

‡ We believe that an instance of this transposition occurs in the anatomical museum of the University of Edinburgh. Winslow relates another case.—See *Memoires de l'Acad.* 1743.

conclusions and deductions from each particular case, and the 'resume' at the end of each class, are equally remarkable for their sagacity and good sense, and for a candour which never hesitates to acknowledge the difficulty (in this class of diseases unfortunately too frequent) of reconciling the symptoms during life with the post mortem appearances. The minuteness with which the cadaveric examinations are made, leaves nothing to be desired, and the advantage our French brethren have over us in this respect is most striking, and strongly contrasts with the difficulties (unhappily apparently increasing) which vulgar prejudices opposes to pathological researches in this country. In respect, therefore, of the number and minuteness of the dissections alone, this book must ever remain, as long as the science of medicine endures, a book of reference to future pathologists. The only part that we are disposed to find fault with is the treatment, which is in most of the cases, not to use a bit too harsh a term, contemptible, and would in many instances be absolutely ridiculous, were it not for the serious reflection of the great fatality which must be the result; a reflection, we are sorry to say, applicable to the French treatment of too many other classes of disease, and which, to our mind, fully explains the great annual mortality in the French metropolis as compared with London. What effect, with any reason, the French physicians can expect 'honied barley water' (*tizane d'orge meillée*) 'diluting drinks' (*boissons delayantes*) in arresting the rapid course of inflammations of the brain and its membranes, is beyond our guess.

The work is divided into four great parts. 1. Diseases of the membranes of the brain. 2. Diseases of the functions of the brain. 3. Diseases of the cerebrum. 4. Diseases of the cerebellum. Of these at present we shall confine ourselves to the consideration of the first division, diseases of the membranes, a highly important one, and most ably treated.

After giving two extremely interesting cases of fibrous tumours of the dura mater, he makes, as a kind of introduction, the following important remarks and queries.

"There are few diseases whose symptoms present so many varieties, and if, one may so say, such individual differences as acute inflammation of the membranes. Do any well-marked signs exist, by the aid of which we can easily distinguish during life, the inflammation of the membranes which cover the upper surface of the brain, from inflammation of the membranes which are in relation with the inferior surface of this organ? Do any particular functional disorders exist which belong to inflammation of the membrane which is spread over the walls of the ventricles? By what signs can we re-

cognize the inflammation of the membranes surrounding the spinal cord? Whatever be its seat, can acute meningitis be distinguished by its symptoms from other acute affections of the encephalon, in which this organ is materially altered, or one of those cases, so frequent, in which the irritation of the brain or of its envelopes, purely sympathetic of the irritation of another organ, leaves after it on the dead body no trace of its existence. Finally, on the dead body itself, what are the anatomical characters, by the aid of which, we could affirm that there has really been acute meningitis, in the cases where, during life, symptoms have existed seemingly belonging to it. Such are the questions yet undecided in the science, and to the solution of which, we believe that the following observations may contribute."

Thirteen cases of disease affecting the arachnoid and pia mater covering the superior surface of the brain, follow: each of these possesses some point worthy of notice, and the observations on many are very valuable.

On case the fourth he makes the following observation, confirming the views of Abercrombie, of the futility in general of affixing particular symptoms to particular states of the brain.

"One of the most curious circumstances of this case is, that the symptoms related in it have the greatest resemblance to those to which ramollissements of the brain gives rise to; thus the sickness begins by a headach, fixed to a particular point; then the intelligence becomes obtuse; later the limbs on the opposite side to the pain gradually become enfeebled, and finally a moment arrives when the paralysed limbs offered at the same time a well marked contraction. Are not these all signs of ramollissements of the brain? Yet there was not the least trace of that alteration, and all that was found was a collection of blood between the dura mater and arachnoid, which last appeared thickened and diseased.

With Abercrombie, however, he differs on the much debated subject of serous apoplexy. Abercrombie believes a previous state of congestion *always* to precede the serous effusion, and that the congestion of the brain is the cause of the apoplectic state, and not the serous effusion, which is merely the result of the loaded vessels relieving themselves by parting with their serum, as happens wherever there is impeded circulation; while Andral, from three cases, draws the conclusion, (in the last, we think unwarrantably), that the serous effusion is the primary effect and only cause of the coma, and never hints at a previous state of congestion; on this point we are inclined to side with the former. Passing over the cases "of diseases affecting the membranes covering the inferior surface of the brain," "of those lining the ventricles," "on the diseases affecting the whole of the membranes;" and lastly, on dis-

cases of the membranes of the spinal cord, not from their wanting value, but our want of space, we hurry to the "résumé," which abounds with pathological observations of the utmost interest and importance.

"We have met with lesions in the dura mater much less frequently than in the two other membranes which envelope the brain;" after mentioning the two fibrous tumours of the dura mater, and another he found growing from the dura mater, covering the middle and lateral fossa in the base of the cranium, he says:—

"One of the cases has shown us a considerable ossification of the great duplicature of the dura mater, the falx cerebri, of all parts of the dura mater, it is that we have found the oftenest incrustated with phosphate of lime. In two cases where it presented no trace of ossiform substance, this falx was transformed, in nearly the whole of its extent, into a large plate of a cartilaginous texture. The extremely fine cellular tissue interposed between the proper tissue of the dura mater and that of the arachnoid, which lines its internal surface, has shewn us some lesions worthy of notice. First, we have met in it some of those cartilaginous or osseous plates, of which we have further established, that the ossifications of the fibrous membranes have oftener their seat in the cellular tissue, which is in immediate connection with these membranes than in their proper tissue.

"Once only we have found the arachnoid separated from the portion of the dura mater, which corresponds to the vault of the cranium, by little depots of pus, between them the membranes appeared healthy. These depots were to the number of five; they only existed on the left side; each of them presented the appearance of a white layer of three or four lines thick, interposed between the arachnoid and dura mater. There was also at the same time seroparulent infiltration in the sub arachnoidean cellular tissue, of the connexity of the hemispheres.

"We never met with serosity effused between the arachnoid and dura mater: but two of the cases we have cited, have shewn us considerable effusion of blood, effected between these two membranes. The arachnoid was separated without its tissue being otherwise altered in any manner. It is likely that in these two cases the blood exhaled under the cavity of the arachnoid was furnished by the vessels of the dura mater."

He next proceeds to state his experience of the diseases of the arachnoid:

"The lesions of the arachnoid, like those of the other serous membranes, chiefly bear on its products of secretion. These may be modified in different ways, although at the same time the arachnoid does not receive more blood than usual, and has undergone no appreciable modification in its nutrition. We ought only to admit, that the arachnoid has been the seat of a morbid secretion, when the pre-

duct of this secretion is found in its cavity itself. Now this case is much rarer than that in which the morbid product is met outside the arachnoid, in the cellulo-vascular tissue which constitutes the pia mater.

“The morbid products whose existence we have confirmed in the cavity of the arachnoid itself, are the following:

“1st. An effusion of clear and transparent serosity. A like effusion is very rare at the superior surface of the brain, it is more common at the base of the cranium, towards the occipital fossæ.

“2nd. An effusion of turbid serosity, milky, with purulent flakes. We have only once seen an effusion of this sort in the great cavity of the arachnoid.

“3rd. False membranes not yet organized, lining one or other free surface of the arachnoid.

“4th. False membranes longer formed than the preceding, of serous organization, extended on one or other free surface of the arachnoid.

“5th. Adhesions of cellular appearance analogous to the bands of the pleura, stretching from one free surface of the serous membrane to its other free surface.

“There are some cases in which, instead of any of these anormal products, we have only found a remarkable dryness of the arachnoid at its non-adhering surface. It seems, that in like circumstances there had been, during the last hours of life, suspension of the exhalation of the perspiratory fluid, which properly gives to this membrane a certain degree of polish and of moisture. With or without these different degrees of alteration of secretion, never have we found in the arachnoid the least vascular injection; neither have we ever recognized in it change of colour nor thickening. It has always appeared to us that the cases in which the arachnoid appeared at first sight either coloured or thickened, were cases where there was a lesion of the subjacent cellular tissue.

“Whatever be the nature of the fine membrane which lines the internal surface of the ventricles, this membrane presents in the pathological state nearly the same lesions, as the arachnoid extended round the brain, but these lesions are met with more frequently in it: it is much more common, for instance, to find serosity effused in remarkable quantity in the ventricles, than in the great cavity of the arachnoid which covers the convexity of the hemispheres. The presence of this serosity in the ventricles only ought to be considered as the result of a morbid action, when the quantity exceeds an ounce in each lateral ventricle. When it is very abundant, it raises the superior wall of the ventricle, and in pressing it lightly with the finger, this wall presents a manifest fluctuation. At this degree, one cannot doubt that the accumulation of the serosity in the central cavities, is a morbid phenomenon. It is rare that a remarkable difference is found in the quantity of serosity that each of the lateral ventricles contains. Whenever this quantity was considerable, we have found

the septum lucidum and the fornix very soft, reduced even to a kind of bouilli of a deep white.

“ Instead of a clear serosity, one occasionally meets with in the ventricles, a turbid liquid like unclarified whey, in which floated those flakes, said to be albuminous, which constitutes so frequent an anatomical character of inflammations of the pleura and peritoneum. Finally, some of our cases have shewn us the ventricles filled by a collection of true pus, which, doubtless in consequence of its greater weight, is chiefly found accumulated in great quantity, either at the inferior part of each lateral ventricle, or in the cavity of the posterior cornu. In the majority of these cases where pus exists at the interior of these lateral ventricles, we meet with it at the same time in some points of the sub-arachnoidean cellular tissue, which surrounds the nervous centres. The membrane which furnishes these varied products, has only once presented finely injected vessels, which lined like a net work the internal surface of the walls of the ventricles. In all the other cases observed by us, in those even where pus filled the ventricular cavities, no appreciable lesion appeared in the membrane covering the sides. We do not consider, indeed, as an alteration of nutrition of this membrane, but as being a product of disturbed secretion, little granulations, which sometimes shew themselves scattered over the internal surface of the ventricular parietes.”

He next proceeds to the affections of the pia mater.

“ We have observed them oftener than those of either of the other membranes, they are the following:

1. Infiltration of its tissue by a clear serosity, colourless, transparent; sometimes this serosity only forms a thin layer interposed between the arachnoid and the cerebral substance; sometimes accumulated in more considerable quantity under the arachnoid, it strongly raises this membrane and distends the cerebral anfractuosities.

- “ 2. Infiltration of the tissue of the pia mater by a turbid liquid, milky, and finally by true pus. This last has sometimes a remarkable consistence; it is as if intimately combined with the cellulovascular tissue, in the bosom of which it is formed; it is concrete, as certain pseudo-membranes of the pleura and peritoneum.

- “ 3. A true state of scirrhus induration of the tissue of the pia mater. This state we have once seen.

- “ 4. Serous cysts of variable size and number. They can, according as they become developed, compress more and more the cerebral substance, and thus become in a manner entirely mechanical the cause of various accidents.

- “ 5. Cartilaginous or bony plates, which we have seen in one case, cover like a second vault the anterior fourth of the convexity of one of the hemispheres.

- “ 6. Tubercles, sometimes not in small number, but disseminated over a large surface; sometimes numerous, collected together, and forming by their union homogeneous whitish masses. It sometimes happens, that the tubercular matter is deposited between two convo-

lutions, the interval between which it completely closes. Then it happens, that the two portions of pia mater which cover each convolution come to adhere strongly together, and in like case careless examination might lead to the belief, that it is in the thickness even of the parenchyma of the brain that the tuberculous matter is formed.

“7. Adhesions intimately uniting the convolutions, sometimes so strongly that they can only be separated by tearing them.”

He believes that most of the lesions, the seat of which authors place in the arachnoid, and which are to them anatomical characters of arachnitis, oftener reside in the pia mater. In nearly all the cases, for instance, where the convexity of the cerebral hemispheres is covered with a layer of serosity or of pus, this layer exists under the arachnoid.

“Every time we have found tuberculous matter deposited around the nervous centres in their enveloping membranes, it was not the arachnoid which has appeared to us to contain this product of morbid secretion; it filled the layers of the pia mater. We can say as much of the cartilaginous or osseous concretions, which we sometimes find under the form of grains or of plates, more or less extended round the substance of the brain or spinal marrow; except the cases mentioned previously, where these concretions were developed between the arachnoid and dura mater.”

He also considers the pia mater as the seat of the small bodies termed glandulæ Pacchioni, an opinion admitting of considerable doubt; nor are we inclined to adopt his belief that they are the products of disease.

“If we return now to consider the simple rednesses and the different degrees of injection which the membranes can present, we shall confirm by our own cases, what has been said by Chaussier and others; we shall find that these rednesses, more or less intense, of greater or less extent, have, at least, in ninety-nine times in a hundred, their exclusive seat in the pia mater, and that above it the arachnoid remains transparent and colourless. But, although in admitting that in diseases under the name of arachnitis, or what is better, of meningitis, lesions are oftener discovered in the pia mater than the arachnoid, it must not be established, as some authors have wished to do, that the arachnoid always remains untouched.

“The lesions of the pia mater are oftener found on one convexity of the cerebral hemispheres than elsewhere. Sometimes it extends over both hemispheres, sometimes it is confined to one. It may occupy any extent, and with respect to the different symptoms which may result, it is well to note that there are cases where we find either simple redness or purulent infiltration exactly limited. First, to the anterior extremity of one or other hemisphere. Second, to its middle part. Third, to its posterior. Fourth, to its lateral parts. The anterior extremity of the hemispheres has appeared to us to be the most frequent seat of these partial meningites.

“ We recollect to have seen some cases in which a lively redness existed simultaneously towards the most anterior part of each hemisphere ; every where else the pia mater being pale.

“ At the inferior surface of the brain, similar lesions present themselves, but oftener, if we are to believe what we ourselves have seen.”

With respect to extent, &c., the same remarks apply to the pia mater in this situation ; the part he has seen the oftenest affected with purulent infiltration, is that around and behind the commissure of the optic nerves, frequently also in the fissure of Sylvius.

“ The pia mater enveloping the cerebellum has appeared to us much less frequently affected than the cerebral pia mater.

“ The pia mater of the spinal marrow offers the same affections as that of the brain, but is much less frequently diseased.

“ What results from our observation is, that in most cases where the pia mater which surrounds the spinal marrow, has become the seat of a purulent infiltration ; this same infiltration has been found in the cerebral pia mater. On the other hand, nothing is more common than to find this last remarkably altered, the other being perfectly untouched.”

After observing how much oftener disease of the pia mater of the base is met with than that of the convexity, he continues:

“ The diseases of the membrane lining the internal surface of the ventricles, have not appeared necessarily connected with those of the pia mater extended round the brain. We have in fact cited some cases in which the ventricles were filled with pus, or considerably distended by serosity, without any appreciable lesion existing in the exterior pia mater, any more than in the rest of the arachnoid.

“ Every possible variety of alteration of the meninges may exist without the cerebral substance itself participating in any manner in these alterations. In most of the cases we have related, this substance was found perfectly untouched. But at other times it is found altered at the same time as the membranes. Thus, in some cases where the inflammation has chiefly for its seat the portion of the meninges which covers the convexity of the hemispheres, it is not rare to find, the grey substance of the circumvolutions injected and softened, this is taken off like a pulp, the moment the pia mater is attempted to be separated. Sometimes we find nothing deeper ; sometimes all the medullary substance of the hemispheres presents on each incision a great quantity of red points, which are the divided orifices of so many vessels gorged with blood.

“ In some cases when the sub-arachnoidean cellular tissue contains a great quantity of serosity, we have been struck with a species of œdema, of which the cerebral substance was itself the seat. In

pressing this substance, cut in slices, between the fingers, a great quantity of a serous liquid was expressed, like that which infiltrates the pia mater."

Sometimes ramollissement is a complication of the meningitis; sometimes, particularly in extensive softening, the meningitis is the complication.

We have given these extracts almost without comment, because they require none, being purely pathological facts deduced from the most extensive experience, and well worthy of being treasured up, as of surpassing value, in tending to confirm right notions of the nature of the important class of diseases they are intended to elucidate.

JOHN HAMILTON.

SCIENTIFIC INTELLIGENCE.

CHEMICAL AND PHYSICAL SCIENCE.

Hare on Freezing Water.—The congelation of water by its own vaporization, accelerated by exposure to the absorbing power of sulphuric acid, or other agents, *in vacuo*, has always been a difficult experiment. A distinguished Professor complained to me lately of want of success in his efforts to repeat it. In November 1832, after having three times succeeded in freezing water by the process in question, yet having failed before my class, I was led to give more than usual attention to the process, in order to obviate the causes of disappointment. It appeared to me that the failure arose from imperfection in the vacuum. An excellent pump, with perfectly air tight cocks, is indispensable; and not only must the pump be well made, it must likewise be in good order. Neither should the packing of the pistons, the valves, nor the cocks, allow the slightest leakage. If a pump has been used previously for freezing by the evaporation of æther, it will not be competent for the experiment in question, unless it be taken apart and cleaned.

Cocks of the ordinary construction are rarely if ever perfectly air tight, and their imperfection always increases with wear. Under these impressions, having cleansed my air-pump, and put it into the best order possible; for the purpose of obviating leakage through the cocks associated with the instrument, I closed the hole in the centre of the air-pump plate by a screw, and for a receiver made use of a bell glass with a perforated neck, furnished with a brass cap and a female screw, by means of which one of my valve cocks was attached. A communication between the bell and the chambers of my pump was established through the valve cock and a flexible lead pipe, in a mode analogous to that already described in the account of the valve cock. In this way I succeeded in preserving the vacuum longer than when the cocks of the air-pump were employed in the process, and accomplished the congelation of water by means of the vacuum and sulphuric acid.

Latterly, I have used an apparatus in which a brass cover is made to close a large glass jar so as to be quite tight. In operating, the bottom of the jar was covered with sulphuric acid, and another jar with feet, also supplied with acid enough to make a stratum half an inch deep on the bottom, was introduced as represented. The bottom of

the vessel last mentioned was, by means of the feet, kept at such a height above the surface of the acid in the outer jar as not to touch it. Upon the surface of the glass vessel, a small piece of very thin sheet brass was placed, made concave in the middle, so as to hold a small quantity of water.

The brass cover was furnished with three valve cocks, one communicating with the air-pump, another with a barometer gauge, and the third with a funnel supplied with water. Under these circumstances, having made a vacuum on a Saturday, I was enabled to freeze water situated on the brass, and to keep up the congelation till the Thursday following. As the water in the state of ice evaporates probably as fast as when liquid, during the night the whole quantity frozen would have entirely disappeared, but for the assistance of a watchman, whom I engaged to supply water at intervals. At a maximum, I suppose the mass of ice was at times about two inches square, and from a quarter to a half an inch thick. The gradual introduction of the water, by aid of the funnel and valve cock, also of a pipe by which it was conducted to the cavity in the sheet brass, enabled me to accumulate a much larger mass than I could have procured otherwise. A brass band embracing the inner jar near the brim, with the three straps proceeding from it, serves to keep this jar in a proper position; that is, in fact, concentric with the outer jar.

In this last-mentioned experiment, I employed an air-pump upon a new construction, which I have lately contrived, and of which I shall soon publish a description.—*Philosophical Magazine*, November, 1834.

Analysis of the Brain.—According to M. Couerbe, the brain, when examined with a powerful microscope, appears to be composed of globules which are slightly elliptical, and are larger in the grey substance than in the white. These globules are coagulable by acids, like those of milk and the blood, and by a great number of other substances.

M. Couerbe finds in the brain :

1st. A pulverulent yellow fat,	<i>stéaroconote.</i>
2nd. An elastic yellow fat,	<i>cérancéphalote.</i>
3rd. A reddish yellow oil,	<i>éoléancephol.</i>
4th. A white fatty matter,	<i>cérebrote.</i>
5th. Cholestrine,	<i>cholestérote.</i>

Added to these are the salts found by Vauquelin, lactic acid, sulphur, and phosphorus, which form a part of the fats above named.

Before the brain was submitted to various kinds of treatment, it was deprived of its membranous covering and washed with cold water, in order to separate, as nearly as possible, all the blood with which it is always impregnated: it was then malaxated and digested in cold æther, and all that was soluble in this fluid was dissolved by maceration in repeated portions of it. The first contained but little of the fatty matter in solution; the æther appeared merely to

expel the moisture of the brain, and they were separated together by decantation. The second portion of æther was very rich in fatty matter, and contained but slight traces of moisture : four macerations in æther are almost always sufficient to dissolve all the fatty portions of the brain. After treatment with æther, the brain was subjected to the action of boiling alcohol of sp. gr. 0.817 : the boiling solutions were filtered every time, and the boiling was repeated until they gave no precipitate on cooling ; there then remained a mere agglomerated fibrous mass, which M. Couerbe calls *névriline*.

The alcoholic solutions were mixed when cold, and filtered to separate the deposit, which was washed with cold æther, in order to separate the fat soluble in this liquid : this is susceptible of crystalizing, and perfectly similar to that which is found in the æthereal solution, and which is *cholestérote*.

The powder obtained from the alcohol is very white and pure : it becomes slightly translucent by drying, and has then the appearance of purified wax. The alcohol from which this white powder precipitated, gave more of it by evaporation, mixed with some fatty matter which was separated by æther. The substance dissolved by the alcohol appears to be similar to that described by Vauquelin. M. Couerbe calls it *cérébrote*.

Towards the end of the evaporation of the alcohol, a sort of fluid fat is deposited, which is not the white fatty matter ; it dissolves in æther, and is converted into oil during the spontaneous evaporation of that fluid. The alcoholic residue contains only osmazome, a free acid, and some inorganic salts.

The æthereal solution was distilled, in order to obtain the æther as well as the substances which it had dissolved. These were put into a capsule ; in order to finish the expulsion of the æther. The fatty matters obtained were in considerable quantity, and in the state of a whitish homogeneous adhesive mass, under which there was frequently whitish granular fatty matter, almost entirely formed of *cérébrote*. This appearance was constant in the brains of healthy persons. This fatty matter was then treated with a small quantity of æther, which dissolved it entirely when free from the whitish granular fatty matter, but only partially when that was present.

This *cérébrote* is always found in the mass, distinct from other elements which accompany it when extracted from healthy persons ; but, on the contrary, sufficiently combined with them to become soluble in a small proportion of æther, when taken from the brain of a maniac.

When, then, æther leaves any white substance, it is separated by the filter, and when the æther dissolves it entirely, it is to be evaporated to obtain more of the substance ; the residue is to be subjected to the action of boiling alcohol, which dissolves the three fatty matters, among which is the *cérébrote*, and leaves undissolved a yellow solid fat resembling wax. The substance is almost totally insoluble in alcohol : it is to be washed several times with boiling alcohol to separate extraneous matters. The substance is not yet

pure; it contains another peculiar yellow matter that is separated by cold æther, which dissolves the greater part of the mass, and leaves the other portion in the form of a brown powder. By filtering and washing this brown powder with æther, and then evaporating the æthereal solution, both these substances are obtained.

The portion soluble in æther is of a fawn colour: it cannot be sufficiently dried to be pulverized. The other portion is of a lighter colour, readily dries, and is easily reduced to a fine powder by trituration. The first M. Couerbe calls *cérancéphalote* and the second *stéaroconote*.

When the alcohol, holding the remaining matters in solution, is filtered through animal charcoal, and is exposed to spontaneous evaporation, it deposits a considerable number of crystals, which are very white and have a greasy lustre: they are to be pressed in fine linen, and the alcohol by evaporation furnishes more crystals, which are to be added to the first.

When the alcohol has been weakened by repeated evaporations, it becomes turbid, and yields crystals of the same matter mixed with red oil, which precipitates to the bottom of the vessel: it is difficult to obtain this in a pure state. There often comes down with it some solid matters which give it consistence, and which give it the appearance of fat or even several fatty matters. In order to separate the oil, it must be subjected to a slight pressure in a cloth, and alcohol poured upon it, which leaves the crystals. This alcohol is turbid on account of the oil which it contains. Some æther is to be added to it, which re-dissolves the oil, and renders the liquor clear, when exposed to spontaneous evaporation. A part of the æther slowly evaporates; the remainder holds the crystalline matter in solution, and allows the oil, as it is formed, to precipitate to the bottom of the liquid. When the stratum is rather thick, it is to be removed by a pipette and filtered, and it is then pure and reddish. This oil M. Couerbe calls *éléancephol*, or oil of the brain.

As to the very abundant portion of the brain remaining after treatment with æther and alcohol, and which the author calls *néviline*, it is partly composed of albumen, coagulated globules, and of a membranous substance soluble in potash.

Analysis of the preceding Substances.

Cérébrote.—M. Vauquelin appears to have been acquainted with this substance, which he has described under the name of *white fatty matter*, and which has since been called *myclocone* by Kühn; but according to some of the characters which M. Vauquelin has assigned to his white fatty matter, it seems that he did not obtain it pure, since he says that it is fusible and viscid, whereas *cérébrote* is infusible, and does not stain paper. When properly dried at a gentle heat it becomes friable, and may be pulverized; it is soluble in boiling alcohol, and but slightly so when it is cold. The process for extracting it is dependent upon this difference. It does not

saponify with a solution of potash or soda, a property also observed by Vauquelin.

Cérébrote is composed of

Carbon	67.818
Hydrogen	11.100
Azote	3.399
Sulphur	2.138
Phosphorus	2.332
Oxygen	13.213

100.

Vauquelin does not mention the existence of sulphur in it.

Cérancéphalote.—This substance is solid, brown, insoluble in alcohol and in water, but dissolved by 25 times its weight of cold æther. It softens by heat, and without becoming perfectly fluid: when dried it is elastic, like caoutchouc. M. Vauquelin has not mentioned this substance, but Kühn appears to have had a glimpse of it. Sulphuric acid attacks it with great difficulty: nitric acid reduces it to its elements, and convert the sulphur and phosphorus into acids

It is composed of

Carbon	66.362
Hydrogen	10.034
Azote	3.250
Phosphorus	2.544
Sulphur	1.959
Oxygen	15.851

100.

Stéaroconote.—This is a fatty matter, which occurs mixed with the preceding. It is of a fawn colour, infusible and insipid, and by combustion gives an acid charcoal. Neither alcohol nor æther dissolves this substance; both the fixed and volatile oils readily dissolve it. Nitric acid takes it up after slight ebullition, and it reappears as a white fat, which is acid, soluble in boiling alcohol, and crystallizes in small laminæ, similar to margaric and stearic acids.

This substance is composed of

Carbon	59.832
Hydrogen	9.246
Azote	9.352
Phosphorus	2.420
Sulphur	2.030
Oxygen	17.110

99.990

Eléancéphol.—This is a reddish liquid; its taste is disagreeable: it is soluble in æther, fixed and volatile oils, and alcohol, in all proportions. When heated, this substance dissolves the other matters

of the brain readily, and these impart consistence to it. Its composition is similar to the preceding.

Cerebral Cholesterine.—A crystallizable fatty matter, which, according to some authors, must be the result of some morbid change. The constant and considerable quantity which M. Couerbe found in the brain induces the belief that it is a widely diffused organic animal element. It is well known that MM. Denis and Boudet have found it in the blood. The cerebral cholesterine is perfectly similar to that of biliary calculi. Their analyses gave M. Couerbe the same results :

Carbon	84.895
Hydrogen	12.099
Oxygen	3.006
	<hr/>
	100.

This analysis differs a little from that of M. Chevreul, as follows :

Carbon	85.095
Hydrogen	11.880
Oxygen	3.025
	<hr/>
	100.

Ibid.

Valerianic Acid and its Salts.—It is well known that M. Grote discovered in the distilled water of valerian an acid, which has been examined by M. Peatz (Berzelius, *Traité de Chimie*, tome v. p. 98.) M. Tromsdorf has made some new observations respecting this acid.

Valerianic acid is liquid, colourless, limpid, and oleaginous. Its smell strongly resembles that of the root and the essential oil of the *Valeriana officinalis*: the odour is diminished when the acid is combined with a base, but it is never totally lost. The taste of valerianic acid is very strong, very acid, unpleasant, and permanent. If the acid is diluted, it leaves a sweetish after-taste. Its sp. gr. is about 0.944; it remains fluid at 0° Fahr.; it burns, without leaving any residue, with an intense flame; when heated to about 270° it boils; it is soluble in 30 parts of water at 54°; alcohol dissolves it in all proportions, but neither olive oil nor oil of turpentine; it is very soluble in concentrated acetic acid of sp. gr. 1.07; cold sulphuric acid renders it yellow, and decomposes it when hot, sulphurous being evolved; nitric acid, even when hot, has not much action upon it.

According to M. Effling, it is composed of

Carbon	64.96	or 10 atoms	=	764.37
Hydrogen	9.54	— 18 —	=	112.31
Oxygen	25.50	— 3 —	=	300.00
	<hr/>			<hr/>
	100.			1176.68

Valerianic acid is prepared by agitating the essential oil of valerian with carbonate of magnesia and water. The mixture is to be afterwards distilled, and by this an oil is obtained which is no longer acid, and the odour of which is less strong than the original oil; a proper quantity of sulphuric acid is to be added to the liquid which remains in the retort, and the distillation is to be repeated. The valerianate is decomposed, and the valerianic acid distils.

Valerianic acid may also be obtained by another process, described in the work of Berzelius. It consists in saturating the distilled water of valerian with carbonate of potash or of soda; distilling to separate the oil; then decomposing with sulphuric acid, to obtain the valerianic acid by distillation.

The oil of valerian may also be treated with potash or soda; then separating the oil, and afterwards the acid.

The valerianates have a peculiar odour; a sweet taste, followed by a sharp one. Some of these salts are unalterable when exposed to the air, some efflorescent, and others deliquescent; they crystallize with different degrees of facility; they are greasy to the touch, and of different degrees of solubility in water; by heat they are decomposed, but there is first a disengagement of a small quantity of acid, which is volatilized without alteration. The stronger acids separate the valerianic acid from its combinations, and this acid decomposes the benzoates and the carbonates.

The valerianates of potash and soda are deliquescent; the valerianate of zinc crystallizes in laminæ during the cooling of a hot solution, but by spontaneous evaporation acicular crystals are obtained. Valerianate of barytes is an amorphous mass, unalterable in the air; the valerianates of lime and magnesia crystallize in needles, which are not deliquescent. Valerianate of lead desposits in laminar crystals from a hot solution: by evaporating the liquor a thick syrupy fluid is obtained.

With the oxides of mercury valerianic acid forms two salts. The protovalerianate is but little soluble; a saturated boiling solution deposits small needles on cooling. The pervalerianate of mercury is much more soluble: if the solution is boiled with an excess of protoxide, a bright yellow pulverulent subsalt is deposited on standing.—*Ibid.*

Distillation of Tartaric and Pyrotartaric Acids.—M. Pelouze finds that tartaric acid, like other vegetable acids, yields very different products, and in very variable quantity, according to the temperature employed in its distillation.

With a naked fire there are obtained empyreumatic oil, olefant gas, water, carbonic acid, acetic acid almost crystallizable on account of its great concentration, and a quantity of pyrotartaric acid so small, and so mixed with other products, that it is difficult to separate it. From about 400° to 570° Fahr. the same products are obtained, but in very different proportions, and the pyrotartaric acid is

much more abundant: between 350° and 375° the proportions of pyrotartaric acid and acetic acid increase still more than the traces of empyreumatic oil; but there are sensible quantities of acetic (carbonic?) acid, carburetted hydrogen, and carbon. By evaporating the product of this distillation crystals are obtained, which it is possible to purify, but by a long and delicate operation. The following is the best process:

Put the compound liquid in which the pyrotartaric acid is dissolved into a glass retort, and distil until the residue has acquired a syrupy consistence; then change the receiver, and continue the distillation to dryness; expose the liquor last distilled to a very low temperature, or to spontaneous evaporation *in vacuo*. In both cases irregular yellowish crystals are obtained, of an empyreumatic odour; these are to be pressed between several folds of filtering paper; they are then to be redissolved in water, and the boiling solution treated with animal charcoal. By these means pure crystals of pyrotartaric acid are obtained on cooling.

Pyrotartaric acid obtained by this process has the following properties: it is white, inodorous, very soluble in alcohol, strongly sour to the taste, like tartaric acid itself. It is fusible at about 212° Fahr., it boils at 360° ; and as it decomposes at a temperature a little higher than this, it is difficult to volatilize it without leaving a residue.

A concentrated solution of this acid does not render lime, barytes, or strontia water turbid; it forms in a solution of acetate of lead a very abundant white precipitate, insoluble in water, but very soluble in an excess of acetate; it does not precipitate either neutral acetate or nitrate of lead. None of the following salts are precipitated by free pyrotartaric acid: proto- and per-salts of mercury, persulphate of iron, the salts of lime and barytes, the sulphates of zinc, manganese, and copper. The neutral pyrotartrate of potash is a deliquescent salt. Pyrotartaric acid is represented by C^5, H^8, O^4 ; by combining with bases it loses an atom of water, and becomes C^5, H^6, O^3 .—*Ibid*.

NATURAL HISTORY.

Observations on the Origin of Mouldiness, by M. Dutrochet.—Water, which holds organic substances in solution, very frequently develops living beings, viz. the *infusores*, which belong sometimes to the animal, and sometimes to the vegetable kingdoms. These substances, which have been regarded by certain naturalists as the product of spontaneous generation, ought to be considered, with greater propriety, as owing their appearance to the development of certain invisible germs which are scattered throughout nature with profusion, and which only require favouring conditions to assume their being, and to develop themselves. We may place among the vegetable infusores that kind of white *byssus* which is composed of

minute branching threads, sometimes articulated, and sometimes not, which frequently exhibits itself in water, holding various organic substances in solution. It is to this vegetable production that the observations made by M. Amici refer, and which are expounded in his memoir, entitled *Observations sur l'Accroissement des Végétaux*.* M. Amici having observed, in those little wounds by which the vine, in spring-time, pours out an abundant sap, a kind of yellowish byssus, examined this substance with the microscope, and found it composed of branching threads and articulations. He considered it as a kind of *conferva*. Anxious to discover what might be the origin of this vegetable production, he observed that it appeared in the sap of the vine when collected in vessels, and that in them it developed itself with rapidity. He was thus led to consider this vegetable production as owing its origin to a tendency which the sap of the vine had to become organized, consequently as being the result of a spontaneous generation. Starting with this supposition, M. Amici is led to allow that it is by means of this tendency to spontaneous organization, that in general the sap produces wood, the increase of which it is continually effecting. Passing by this hypothesis, I wish to discover the class, and the conditions in which this kind of vegetable filament exhibits itself, and of which M. Amici only discovered a single variety. For the most part they present themselves under the appearance of a white or rather transparent kind of felt, composed of a number of branching filaments of the minutest delicacy; they never exhibit the green colour peculiar to the *confervæ* and to the *vaucheriæ*. Besides, these vegetable filaments which we are now considering, do not require the influence of the light, that they may live and thrive; they grow as well in the dark as in the light. They are seen to grow in water containing certain organic matters. I have seen, as M. Amici did, their development in the sap of the vine, also in gum water; but they especially appear in abundance in water in which a little isinglass is dissolved. In water, which holds in solution a small quantity of the gelatine of strong glue, they do not appear so frequently; and when the water holds in solution a little albumen from the egg, they do not appear at all. I am quite satisfied of this last fact from the many experiments which I have made. And this fact will presently be of use when investigating the conditions under the dominion of which these infusory vegetables appear. We must first, however, determine their nature.

The vegetable filaments which we are here considering, exhibit themselves, as I have just said, under the appearance of a kind of felt, composed of branching threads. It is especially at the bottom of the vessel, which contains the liquid in which they appear, that they accumulate; whilst we very frequently observe them also to appear adhering to the sides of the glasses containing the liquid in which

* *Annales des Sciences Naturelles*, l. xxi., p. 92.

they grow. Soon after their first appearance, we observe their filaments radiating as from a common centre; at a later period, their ramifications cross and intersect each other, and in every sense form a sort of felt. When the liquid in which these infusores grow has but little depth, and when consequently they rapidly attain to the surface of the liquid, we perceive they are soon covered in the free air, with a kind of white effervescence, which, examined in the microscope, is found to be entirely composed of mould of the minutest dimensions, but composed of different varieties.

It was important to know if these moulds were parasite vegetables, accidentally implanted upon the filamentous infusory vegetables which filled the water, and occupied its surface; or whether these same moulds were the production, in the air, of these aquatic vegetables. To satisfy myself on this point, I put small portions of these aquatic vegetables into small menisca, that is to say, small glasses of the same shape as watch glasses, not above four or six lines in diameter, and very flat. Seizing one of the small menisca with common pincers, I plunged it into the water which contained in suspension the small portions of the filamentous vegetables above alluded to, and by this means I got hold of them without in any degree injuring them; they remained in the meniscus with the very small quantity of water which it could contain. I then placed this meniscus under a small glass bell, shut close by water, above which the meniscus was elevated, by being placed on a small support. The filamentous vegetable thus placed on the surface of the water, and in a very humid atmosphere, was constantly covered with mould, at the end of three or four days; and it thus became easy for me to transport them under the microscope without injuring them.

In this manner I have completely satisfied myself that mouldiness is the growth in air of the aquatic filamentous vegetables, which we are now considering. I have seen, in the most distinct way, the aerial filaments of the mould springing from the stalks of the aquatic filamentous vegetable; sometimes by a production from the side, and sometimes by the sprouting out of the extremity of one of these aquatic filaments, which, in coming into the air, become, by that alone, a filament of mould, and then assumed an opacity which it had not so long as it continued an aquatic filament. It is thus demonstrated that the aquatic filamentous vegetables, now under review, are the *thallus* growth-stalks of mouldiness. These *thalluses*, when they are entirely under the water, grow indefinitely in this state. Their development is commonly radiated towards the commencement, but frequently it advances in a way that is wholly irregular, so that it truly produces a kind of felt, by the crossings of the filaments. These filaments are sometimes provided with articulations, but more frequently they have none.

The moulds which I have seen produced from the aquatic thallus now under consideration, have all appeared to me to belong to the genera described by Persoon under the names of *Monilia* and of *Botrytis*. I have observed that all the thallus, whose filaments have

joints like the *Confervæ*, give origin to the monilia, whose aerial filaments are also furnished with articulations. It is, without doubt, to a thallus of this kind that the observation of M. Amici refers, concerning the alleged conferva which he saw grow in the sap of the vine. All the monilia, however, are not thalluses with jointed filaments; when the filaments of these monilian thalluses are destitute of joints, the aerial filaments of these microscopic vegetables are equally destitute of them. As to the filaments of the *Botrytis* thallus, they are never articulated.

But one important question still remains for solution; viz. What are the qualities which a liquid must possess, ere it will develop the thallus of mould? * I have previously remarked, that water holding a small quantity of albumen in solution never produces these thalluses. From this fact I started, to discover what chemical qualities it was necessary to give to this same liquid, to make it produce the thallus of mouldiness. In these experiments I used only distilled waters that I might be the more certain of the results. I dissolved a drop of the most liquid portion of the albumen of a new laid egg in an ounce of distilled water, and put it into a flask. This liquid was preserved for a whole year, both exposed to the light, and put into the dark, but it never exhibited the least trace of the thallus of mould. It did not even develop a single atom of *greenish matter*. Thus, it has been indisputably demonstrated, that this albuminous liquid is wholly unfit for the production or the nutrition of the vegetable infusores. I then took six flasks, into each of which I put an ounce of water, mixed with albumen as above, and to each of them I added one drop of an acid. The acids employed were the sulphuric, nitric, muriatic, the phosphoric, acetic, and oxalic. In less than eight days, the thallus of mould appeared in the whole six flasks. These thalluses were simultaneously produced at the bottom and sides of the vessels, and were observed to develop themselves in concentric rays. I then took some of each of these thalluses, and I proceeded in the way described above, so that I might produce their aerial moulds, and they all, without exception, produced *monilia* of different kinds.

Into separate flasks, containing the same albuminous water, I put severally equal quantities of caustic potash, and soda, in the proportion of 0.005 to the weight of the water. In both the thallus of mould appeared, but it was not till about the end of three weeks. In the aerial growths of these thalluses I could only discover *Botrytis* of various kinds.

It would result from these experiments, that the acids exclusively favour the production of the monilia, whilst the alkalis conduce only to the production of the botrytis. But these results are not constant. They are altered by the employment of other organic substances than

* The term *mould* is here employed in the sense given to it by Bulliard, that is to say, in the usual sense. Persoon has divided the genus mould (*Mucor*) of Bulliard into many genera, retaining the name mould to one of them alone.

albumen. Thus, if to distilled water there be added a small quantity of aqua potassa, in which a little of the fibrin of the blood is dissolved, this liquid gives origin to thalluses, which produce *monilia*. I have also seen, that when phosphoric acid is added to the distilled water of lettuce, the liquid gives origin to the thalluses of *botrytis*. In this last experiment, there was in the water no other organic substance but that which had passed over with it in the distillation. I have observed that the distilled water of lettuce, pure and abundant in itself, deposits in the bottom of the vessels in which it is contained a white substance, which is entirely composed of microscopic globules, and which appear to me to be a vegetable infusorus. But this water never produces the thallus of mould, and this, because it contains neither acid nor alkali, conditions which are indispensable, as it would appear, to the production of these thalluses. But this distilled water of lettuce produces these thalluses when a little of any acid is added. And when the distilled waters of plants contain an acid which passes over with them during the distillation, they never fail to produce and deposit at the bottom of the vessels which contain them thalluses of mould. It is thus that I have observed them in the distilled laurel (*Prunus Laurocerasus*) water, which contains, as is known, hydrocyanic acid.

These solutions of organic substances, which produce the thalluses of mould without any addition of acid, or of alkali, assuredly owe this power to their naturally containing a free acid or alkali, as also to this, that they have become acescent. This last alternative is probably the case with the watery solution of isinglass, which produces in such abundance the thalluses of the *monilia*. I have, moreover, found that this solution, in which these thalluses were developed, did not turn the vegetable blues to red. But this is no sufficient proof that they did not contain a free acid in a trifling quantity, sufficient, however, to determine the appearance of the thallus. I have, in fact, seen these thalluses produced in albuminous water, to which I had myself added a quantity of nitric acid, but so small that it did not redden the vegetable blues.

The subcarbonate of potash, which exists in almost all vegetable products, is alkaline, and probably contributes to determine the development of the thallus of mould in certain solutions of vegetable substances. This alkaline salt being added to albuminous water, it then readily produces this thallus. I have proved that the bi-carbonate of potash produces the same effect; but, it is to be remarked, that this salt is scarcely ever neutral, the alkali invariably slightly predominating. It may be asked, how it happens that the albumen of the egg, which contains a small quantity of soda, does not, in virtue of this ingredient, provoke the production of the thallus of mould in the water to which it may be added? To this it may be answered, that the soda in the albumen is not in a free state; but that, according to the opinion of M. Dumas, it forms with the albumen a kind of compounded neutral—an albuminate of soda. I here repeat, that the free condition of an acid or an alkali in solution in the water,

containing an organic substance, is absolutely necessary for the determining of the growth of the thallus of mould. The quantity of these chemical agents necessary for the production of the effect, cannot be determined as it respects its minimum, for this, in reality, appears to be inappreciable; it can, however, be determined as to its maximum. It is well known that no living being can exist in a liquid which is too acid, or too alkaline. I have found that the thalluses of mould are produced in albuminous water, to each half ounce of which a drop of the concentrated sulphuric, nitric, and muriatic acids, is added. This is nearly the maximum of the acidity which allows the production and the growth of the thallus. As to the maximum when the alkalies are concerned, it appears to me it has been reached when the liquid contains an hundredth part by weight of caustic soda, or potash.

When a neutral salt is added to the albuminous water, it does not promote the appearance of the thallus. I make this statement as the result of a great number of experiments.

When I made my first experiments upon the thalluses of mould, I was ignorant of their nature; and witnessing these filamentous infusory vegetables appearing constantly in the albuminous water, rendered slightly acid or alkaline, and never appearing in the pure albuminous water, I was tempted to think that this living vegetable being was the product of spontaneous generation, as M. Amici had done, as before stated. It appeared to me probable that the invisible *germs* of the filamentous vegetable were created by a chemical action of the acid or alkali upon the organic matter dissolved in the water, and that they then developed themselves in virtue of the *vital action* which would have been the necessary attribute of that compound *chemico-organic moléculaire*, or of that *germ*. Such were the ideas that led me astray, previous to my having discovered that these filamentous infusory vegetables were the thallus of mould. Before this discovery, all that had the appearance of the marvellous disappeared, viz. the appearance, in certain liquids, of these infusores vegetables, which, as it would seem, I could produce at pleasure. The various moulds have seeds, whose diminutiveness is excessive, and which, scattered every where in the atmosphere, and perhaps even contained in animal and vegetable liquids, develope themselves under the forms of filamentous thallus, when they are placed in circumstances necessary for their development. The presence then, of an acid, or of an alkali, in an aqueous liquid containing some organic matter, is thus nothing more but a condition of the development of the thallus of mould. Experiment has proved the accuracy of this theory. I have taken a small portion of the thallus of mould, produced in an aqueous solution of isinglass, and I have transplanted it into pure albuminous water, where it ceased to grow. I have also put into pure albuminous water small portions of the thallus of mould, which were taken from the albuminous water somewhat acid, or somewhat alkaline; and they continued in it without any increase. These experiments have proved to my conviction, that pure albuminous water

is wholly improper for the development of the thallus of mould; and that it is on this account that it never appears in this liquid when left to itself. This is also true of the albuminous water united with the neutral salts.

Mercury, whether in the state of a salt, or of an oxide, completely obstructs the appearance of the thallus of mould in liquids where it is found. Thus, for example, the solution of isinglass, which so abundantly produces it, will produce it no longer, if to the solution we add the smallest quantity of red precipitate, or of corrosive sublimate. This property of mercury is very remarkable, and gives rise to some useful applications in the arts.

Mercury in its metallic state, added to the water which holds a little isinglass in solution, does not hinder the prompt production of the thallus of mould; the same is also true of the (æthiops mineral) oxide of the black sulphurate of mercury. The proto-sulphate of mercury (turbith mineral), completely hinders the appearance of the thallus, as in fact, do all the salts of mercury.

Observing how efficacious the oxide of mercury was in preventing the production of the thallus, even when used in a dose of the most minute quantity, I wished to try if there were not other metallic oxides which were capable of producing the same effects. I added, then, various oxides to a watery solution of isinglass. I subjoin the results of these experiments. The oxides of lead and tin appeared to quicken the development of the thallus; it appeared so soon as the second day. The oxides of iron, antimony, and zinc, did not appear to me to exercise any influence upon the development of these thalluses, which appeared, as they usually do, at the end of four or five days. The oxides of copper, nickel, and cobalt, considerably retarded their appearance, for they did not show themselves until the twelfth or fifteenth day. Thus the oxide of mercury appears to be the only one which prevents the appearance of mouldiness.*—*Edinburgh Philosophical Journal*, October, 1834.

Edwards on *Change of Colour in the Chameleon*.—This author concludes: 1st. That the change of colour in the chameleons does not depend essentially either on the more or less considerable swelling of their bodies, or the changes which might hence result on the condition of their blood or their circulation; nor does it depend on the greater or less distance which may exist between the several cutaneous tubercles; although it is not to be denied that these circumstances probably exercise some influence upon the phenomenon.

2dly. That there exists in the skin of these animals two layers of membranous pigment, placed the one above the other, but arranged in such a way as to appear simultaneously under the scarf-skin, and sometimes so that the one may conceal the other.

3dly. That every thing remarkable in the changes of colour which

* *Annales des Sciences Naturelles*. Janvier, 1834.

manifest themselves in the chameleon, may be explained by the appearance of the pigment of the deeper layer to an extent more or less considerable, in the midst of the pigment of the superficial layer; or from its disappearance underneath this layer.

4thly. That these displacements of the deeper pigment can in reality occur; and it is probably a consequence of them that the chameleon's colour changes during life, and may continue to change even after death.

5thly. That there exists a close analogy between the mechanism by the help of which the changes of colour appear to take place in these reptiles, and that which determinēs the successive appearance and disappearance of coloured spots in the mantles of several of the cephalopode mollusca.—*Ibid.*

On the Structure and Uses of the Mammary Glands of the Cetacea, by Professor Traill.—In perusing M. Geoffroy Saint Hilaire's interesting *Fragment* on the structure and uses of the mammary glands of the cetacea, it occurred to me that there was an obvious and easy method of ascertaining how far we must admit the distinction attempted to be established by that eminent naturalist, between the process of lactation in terrestrial and aquatic mammalia.

M. Geoffroy Saint Hilaire describes the formation of the void within the mouth of the young animal, and the flow of the milk, in the usual manner; but he conceives, that in the act of swallowing, it is essential that the air enter by the nostrils to supply the place of the mouthful of milk that is passing into the stomach. His words are, "*Pendant que l'air ambiant, libre désormais de traverser la route des narines, s'en vient remplir l'arrière-bouche, et rendre à la langue et à ses parties accessoires leur première aptitude à la deglutition du bol alimentaire,*" p. 74. The want of this supply of air, he contends, must prevent animals immersed in water from continuing the reiterated efforts of sucking and swallowing without quitting the teat; and he arrives at the conclusion, that "*Le cétacé ne tète donc point.*"

On reading these remarks, I immediately tried whether I could not suck and swallow with my nose closed; and found that the process was not attended with any difficulty. I also ascertained that the same could be done when the face was immersed in a basin of water.

But in order to render all the circumstances of the experiment as similar as possible to those affecting the lactation of aquatic mammalia, I furnished myself with a bladder, containing half an English pint of milk, and connected it with a short glass tube, surmounted by a cow's teat. I entered a bath, and plunging the apparatus and my whole body below the water, I found that I could suck and swallow, in successive efforts, as readily as in the open air. There was so little difficulty, that, on removing the cow's teat, I

sucked up and swallowed all the milk during four immersions, without any violent effort.

When such is the case with man, whose power of submersion rarely exceeds half a minute, why should we doubt that cetacea, accustomed to remain submersed in their own element for a period of not less than fifteen or twenty minutes, without the necessity of respiration, are able to reiterate the action of sucking and swallowing while adhering to the mother's teat?

I may add, that to avoid any accidental chance of error, I was assisted in these experiments by my friend Dr. Cumming of Chester.—*Ibid.*

ANATOMY AND PHYSIOLOGY.

Researches on the Connexion of the Sympathetic Nerves with the Spinal Nerves, by Dr. C. W. Wulzer, Professor, and Director of the Surgical Clinicum at Bonn.—When Scarpa, in the year 1831, by the important observations concerning the separation of the nerves of sensation from those of motion at that time promulgated, was prevailed on to retract his opinion, publicly expressed so far back as the year 1779, according to which the branches of communication between the spinal and sympathetic nerves are connected with both roots of the former;* I was moved to submit in 1832, and again in 1834, to a reiterated revision, my investigations on the same subject, which were made known in the year 1817. My respected friend, Professor Mueller,† and also Professor Retzius,‡ of Stockholm, undertook the subject at the same time. The former from investigations in calves, the latter in horses, obtained results, which perfectly agree with those yielded by my researches in man. Moreover, in the year 1833, my respected colleague, Professor Mayer, by investigations in man, and in a calf, not only proved the connexion of the sympathetic with both roots of the spinal nerves, but has even followed some fibrils of the sympathetic into the spinal marrow, of which he has furnished very instructive delineations.§ In the mean time the

* Antonie Scarpa de Gangliis Nervorum, deque origine et essentia nervi intercostalis, epistola ad H. Weberum, anatomicum Lipsiensem. Mediolani, 1831-8. *Annali Universali di Medicina*, vol. 58, Milano, 1831. Professor Weber, of Leipsick, has supplied a copy of this treatise, which has appeared as a program to the inaugural dissertations of G. E. H. Mueller, and C. H. E. Herzog, 1831.

† Meckel's Archiv. für Anatomie und Physiol. B. vi., 1832, s. 85.

‡ Meckel's Archiv. B. vi., s. 260.

§ Nov. Act. Acad. Nat. Cur. vol. xvi., P. ii., p. 679, Tab. lvi., Fig. ii. et Tab. lvii. Fig. i.

subject is so important in a physiological respect, as to make the greatest possible certainty highly desirable, the obtaining of which is the object of my submitting the following contribution :

The anterior slender root of the spinal nerves runs on the anterior side of the thick posterior root, entirely separated from the latter by the ligamentum denticulatum, to the outer or anterior end of the ganglion of the posterior root, to connect itself intimately with the latter immediately before its ganglion.* This occurs in such a manner that a number of their fibrils, especially the innermost, cross above and beside one another, and soon become so confounded together, that in their further course it is no longer possible to distinguish which fibrils belong to one, and which to the other root. But on the outer surface of both roots, a number of fasciculi remain, which preserve an independent course, and do not mix with one another. It is several lines anterior to the point of junction of the two roots, that the nerve which turns toward the sympathetic usually takes its origin; only with some exceptions, it is nearer. The fasciculi of both roots are already so mixed with one another in this place, that for a great part of the fibrils which compose the branch of communication, it is entirely impossible to determine, whether they belong more to the anterior or posterior root. In another part, however, this may be discerned without much trouble. The fasciculi, namely, above mentioned, which run upon the outer surface of both roots, take a part in forming the nerve of communication with the sympathetic nerve; and here it is clearly manifest, that the important communication between the two systems of nerves is accomplished throughout, as well by the anterior as the posterior roots.

It will not be difficult for a person who is accustomed to labours of this nature, to exhibit this disposition of the nervous twigs with the naked eye; one less practised may make the experiment, working with a lens of about four inches focal distance.

When I compare what I published upon this in the year 1817,† with what is here said, I perceive it to be for the most part a repetition; I have found no cause to alter my view in any essential point. The venerable Scarpa, probably, permitted himself to be carried away through his early acknowledgments for the discovery of the separation of the nerves of sensation and of motion, so far as to overturn his own true decision of 1779. When Scarpa, in his last writing, attributes want of carefulness to the work of Adam Schmidt on this subject,‡ who asserts, that the communicating branch in question arises from the anterior roots of the spinal nerves alone, it must be confessed, that a superficial view tells much in favour of Schmidt's

* Scarpa's assertion, that the two roots effect their union far below the point of the ganglion, (*longe infra eam sedem duas illas radices nexum simul inire,*) is so remote from the truth as to be scarcely explicable.

† *De Gangliorum Fabrica atque Usu*, §. lxxx. p. 95.

‡ A. Schmidt, *de Nervis Bunbalibus*, Vindob. 1794, §. xii. p. 19.

opinion, and so much, at least, is certain, that the communicating branch leaves the system of spinal nerves out of the anterior root, as it requires a more penetrating investigation to be convinced, that the posterior root sends substance to it likewise. If we look at the beautiful drawing furnished by Scarpa,* we might believe that it was made merely to support the correctness of Schmidt's opinion. Mayer represents twelve fibrils of the sympathetic nerve, which sink into the anterior root of the second lumbar nerve, and exhibits only two, as producing the conjunction of the posterior root and the ganglion.

If the kind of communication here sketched, be now considered in a physiological aspect, it must be seen, why, for the better explanation of the function of the sympathetic nerve, its communication with the posterior root of the spinal nerves alone should be particularly desirable. We find almost every where the nerves of sensation and motion in such immediate neighbourhood, in most places even so intimately united, that no doubt can prevail concerning the reciprocal necessity of the near vicinity of both. The indispensable consent of all the parts of the nervous system imperiously demands the intimate connexion of those amongst themselves; why should the sympathetic nerve be an exception from this, whose name justly intimates that this, at least, must be expected in it? Besides the sympathetic nerve is also destined for the production of motion; the pulsation of the heart and the peristaltic motion of the intestines last longer than all the other motions of the body. I am of opinion, that for the performance of its function of this nature, the connexion with the anterior roots of the spinal system of nerves is very essential, for Scarpa's opinion, that the muscular fibrils of the heart, and of the intestines, receive the stimulus to their action not from the nerves, but from contact with the blood, and from the ingesta, seems to me entirely inadmissible. Does not also the important function of secretion which the vegetative nerve presides over, maintain uninterruptedly a peculiar species of motion in all the secretory organs.

The circumstance that the sympathetic nerve is not obedient to our will, would likewise be, in my opinion, not better explained, if this communicated only with the posterior root of the spinal system of nerves. If it be one of the functions of the ganglia, that in them the further passage (*leitung*) of the will's influence should be interrupted, (as I am firmly convinced it is;) for this, the spinal ganglion is not necessary, indeed, to the sympathetic nerve, as this, in itself, possesses for this end ganglia enough, which are disposed in such a series upon its principal cord, (the so called stem,) that the connecting arches coming from the spinal nerves, must pass over immediately into those terminal ganglia. The presence of these latter appears to me, accordingly, to be perfectly sufficient, to explain the

* *Anatomicarum Annotationum*, lib. I. Mutinæ. 1799, Tab. ii. Fig. 1.

degree of independence which exists between the sympathetic nerve and the sensorium commune.

A phenomenon much more difficult of explanation is presented in the fact, that the motor and sensitive nerves having arisen separately from the spinal marrow, soon after their origin are placed in immediate apposition, and by a continued decussation of their finest fibrils enter into most intimate connexion; yet notwithstanding this, by cutting across the posterior or the anterior roots of the spinal nerves, sensation or motion can be abolished at will. The correctness of this fact has been decidedly ascertained; the experiments which Professor Mueller had the goodness to repeat in my presence, upon frogs, leave no doubt upon my mind with regard to it. Also, since I can, by my own experiments, confirm the observations of Fontana, Prevost, Dumas, Ehrenberg, and J. Mueller, that no where a perfect anastomosis of the substance of the nervous fibrils can be ascertained, but only its immediate apposition can be demonstrated: the question still remains, how, whilst the most intimate contact of the parts of both systems of nerves is preserved, how can the separate operation of each be explained? The pleasing comparison of nervous agency with the operations of electricity, which as long as each separate cord of the spinal system of nerves might be reckoned as simultaneously the conductor of sensation and motion, had much in its favour, from this receives a severe blow; for what physician (natural philosopher, *physiker*;) would have it in his power to explain the separate agency of two conductors which stand in the most intimate connexion with one another by means of conducting wires? I am of opinion, that the cellular tissue which lies between the separate cords effects this remarkable isolation of agencies, in somewhat of the same manner, as by means of cellular substance, the separate layers of the intestinal parietes are so separated from one another, that they mutually do not disturb one another in their functions, but that even pathological processes pass with difficulty from one to another. At all events a wide field remains for further investigation with respect to this subject.

Observations on the Existence of a proper Fibrous Tunic of the Lung, communicated by Dr. Stokes.—It has been long taught, that while the pericardium could be demonstrated to be a fibro-serous membrane, at least in that portion not reflected over the heart, the pleura was a serous membrane, between which and the pulmonary tissue nothing intervened, except the sub-serous cellular tissue.

That this opinion is grounded on an imperfect examination of the parts, I have for several years satisfied myself; and I have repeatedly demonstrated the existence of a strong capsule between the serous membrane and the lung, and which completely envelopes this latter organ. In the healthy state, this capsule, though possessing great strength, is *transparent*, a circumstance in which it differs from the fibrous capsule of the pericardium, and which has probably led to the fact of its being heretofore overlooked.

The first instance in which I discovered this membrane, was in dissecting the lung of a patient who had died of chronic pneumonia. On dividing the organ with a sharp knife, through the pleura, I observed three distinct layers. One the pleura; another apparently the sub-serous cellular tissue, much thickened and hardened; and a third of great density, and nearly opaque. This was the tunic in question. Since then I have several times observed it in the diseased, and also have succeeded in demonstrating it in the healthy lung. But it is always more perceptible in the case of disease, when the tissues are more or less hypertrophied and rendered opaque.

In the healthy lung, however, it is not difficult to exhibit it. The mode which I adopt is the following. A portion of the lung being made to a certain degree tense, by grasping the subjacent parts, so as to inflate the more superficial layer of cells, I make with a sharp scalpel the lightest possible scarification of the figure of an U. This divides the serous membrane, but leaves the fibrous untouched. The lower edge of the serous membrane is then to be seized with a delicate forceps, and by gentle traction, and an occasional division of the true sub-serous cellular tissue, a flap of the pleura can be turned up, leaving the air cells still protected by the strong though transparent fibrous coat. The surface of this latter investment, even after the removal of the serous membrane, is still smooth and shining. The knife is now to be carried through the fibrous coat, and it is to be turned back in the same mode. Its great strength is at once apparent, on its being grasped with the forceps, or raised upon the point of the knife, and the surface of the lung then displayed is irregular and fleshy.

This tunic invests the whole of both lungs, covers a portion of the great vessels, and the pericardium seems to be but its continuation, endowed in that particular situation with a still greater degree of strength, for purposes sufficiently obvious. It covers the diaphragm, where it is more opaque, and in connexion with the pleura lines the ribs, and turning, forms the mediastina, which thus are shown to consist of four layers, two serous, and two fibrous.

This description of the investments of the lung is interesting in a physiological and pathological, as well as an anatomical point of view. It establishes an additional analogy between the lung and the parenchymatous and glandular organs of the abdomen, which have their fibrous capsules, and illustrates the general law, of the constant association of serous and fibrous membrane, as we see to occur with respect to the arachnoid, pericardium, peritoneum, tunica vaginalis testis, and the synovial capsules. Considered pathologically, it may explain the pain of pleurodyne and pleuritis, and the rarity of perforations of the pleura, so remarkable when considered in connexion with the frequency of ulcerations of the lung, which constantly approach so close to the surface as to be bounded by the fibro-serous membrane alone. In pleuritis with effusion, its existence may assist in explaining the binding down of the lung and its corrugated appearance after the removal of the effusion, and as has been suggested to me, it may be the seat of ossifications of the pleura.

Since the above was written, I have been informed that Dr. Hart has demonstrated this tunic, in his anatomical lectures in the Park-street School, and in conversation with that gentleman, I have found that he has held the same opinions as those expressed above, for some years; and it is interesting, that he was first led to the observations of the existence of this tunic, by circumstances similar to those which I have described, namely, the dissection of the lung, which had been affected by chronic pneumonia. He describes it as most strong beneath the costal pleura. It is highly gratifying to me to find that my opinions are corroborated by those of this eminent and philosophical anatomist.

Mechanism of the Sounds of the Heart, by M. Majendie, second part of his memoir on this subject.—The facts and experiments related in the first part, as may be seen in the analysis that we have given of them, tend to establish that these phenomena are the results not of the action of the blood on the heart and larger arteries, nor on the displacement of the cardiac or arterial valves, but on a double shock which the heart exercises on the parietes of the chest. One of these shocks is caused by the apex of the organ at the instant of the contraction of the ventricles, the other by its anterior surface at the moment of their dilatation. If the mechanism producing the normal sounds of the heart be so simple, and depend so directly on the laws of acoustics, may we not hope to arrive at a plausible explanation of the numerous modifications which diseases offer in point of frequency, intensity, and character of the morbid sounds. Modifications, which are acquiring every day more importance, since often by their assistance, and the comparison they afford, the physician distinguishes and appreciates the different organic lesions of the heart. This new application of physical science to medicine is the subject of the second part of M. Majendie's memoir. The principal modifications in the morbid sounds of the heart, are relative either to their frequency, regularity, or intensity.

The augmentation or diminution of *frequency* depends purely on the acceleration or retardation of the motions of the heart. Nearly the same rule holds good as to *intensity*; any moral or organic cause, which increases the force of the heart's action on the thoracic parietes, will increase the intensity of its sounds. This increase is sometimes so considerable, that the cardiac sounds may be heard at a certain distance—for instance in the next room to the patient, and to cause his bed to be shaken very visibly. Cases of this nature are observed in those persons whose vigorous heart strikes energetically on an ample and sonorous chest, and develops sounds, whose intensity represents the violence of the shocks which have produced them, and the physical qualities of the body receiving the impulse.

When, on the contrary, the beating of the heart is weakened, and almost null, as is observed in the collapse of cholera, the sounds of the heart cease to be heard. But sometimes also the sounds disappear, although the heart performs its functions in a regular manner, and continues the circulation. This fact, in the most of the hypotheses

hitherto proposed, appears inexplicable. In fact, if the sounds of the heart depended on its internal mechanism; the organ always acting, and sometimes with great energy, how could the sounds cease to be perceptible? It should be that the parts enclosing it should become unfit to transmit sonorous shocks, a thing that is not admissible. In the new theory, on the contrary, this fact presents no difficulty. Divers causes are opposed to the development of the cardiac sounds, but all resolve themselves to a *suppression of the shock of the heart* on the thoracic parietes. Thus, in hypertrophy of the heart, when the disease is in its first stage, there is for a time a gradual elevation of the intensity of the sounds, which results evidently from the increasing force of the shocks, by reason of the excess of volume and contractile power of the organ. But a time arrives when the contractile force of the heart continuing to increase, and having become extreme, the cardiac sounds cease to be heard: meantime the ventricles contract and dilate; the blood penetrates them, and is expelled from them; the circulation is active and complete; the hand applied to the region of the thorax perceives these violent impulses, and the thorax itself is visibly raised. But the volume of the heart has become such that at no moment is there any distance between it and the parietes of the chest. There is no longer any shock, properly so called, and consequently no sound. If by well directed treatment the volume of the heart be diminished, the retreat of this organ occurs; the distance between it and the parietes of the chest becomes marked; hence there will be a shock and a return of the sound.

Another cause tending to maintain the heart applied against the thoracic parietes, and consequently to annihilate the cardiac sounds, is the presence of fluid effused into the right side of the chest; by which the heart is pressed against the parietes of the opposite side. M. Majendie has had recently an opportunity of observing, at the Hotel Dieu, a case of this sort in a woman, who being affected with considerable hydrothorax offered only the first sound, viz., that of the apex of the heart; the second sound having completely disappeared. The details of the autopsy given in the memoir, explain the suppression of one of the sounds, and the persistence of the other experiments on living animals confirms the explanation given by Majendie; thus by introducing a finger into the chest, so as to confine the heart against the sternum, the sounds were made to cease.

In the first part of the memoir it has been shown, that if any thing prevents the contact of the heart with the parietes of the chest the production of sounds is prevented. Certain dispositions of the organs of the chest may produce, in certain individuals, the same result as is obtained in the experiments on animals, by the interposition of a mechanical obstacle. Thus if a portion of the left lung be placed between the apex of the heart, and that portion of the thorax which is to be struck by it, the interposition of this cushion will deaden or destroy the sound which should be caused by the shock of the apex. The same cause cannot cause the disappearance of the second sound, for the lung, unless in very extraordinary circumstances, does not

place itself between the parts from whose contact this sound is produced; but other morbid causes may interfere in this point. Thus, in a female who died at twenty-four years of a congenital affection of the heart, the first sound alone was perceptible. The autopsy demonstrated, that the absence of the other sound depended on the presence of albuminous layers, the result of an old pericarditis; these layers enveloped the whole heart, except its apex.

The accumulations of fluid in the membrane surrounding the heart is not in general opposed to the development of the cardiac sounds; because the organ, plunged in a fluid, meets no obstacle to its motions, and moves with ease, unless the accumulation be very great. In the case where it becomes so, the fluid pushes back the base of the heart, keeps it at a considerable distance from the sternum, and hinders the shock and the sound.

This result had been remarked by Laennec, who did not seek to explain it; and indeed it would have been impossible to explain it by his hypothesis. His hypothesis would have led to conjectures more likely to explain the suppression or modification of the sound depending on other causes. Thus in a case observed by M. Majendie, the sound of the shock produced by the apex was persistent, but in place of the second there was heard a rubbing sound, which evidently occurred at the moment of entrance of the blood into the ventricles. The autopsy showed what was beforehand suspected, that this abnormal sound depended on a narrowing of the right auriculo-ventricular opening. In consequence of this disposition, the blood penetrated the cavity, slowly producing a rubbing sound, but no shock.

Such a modification appears to be very rare, for the author has observed it only once; but there is another which is more frequent, and which forms a counterpart to it. In this latter, the sound of the body of the heart is normal, that of the apex having disappeared, and been replaced by a well marked rubbing sound. In this modification, the blood enters with facility into the ventricles, and the clear sound is manifest. But the blood passes with some difficulty into the aorta, from narrowing of this vessel, or from malformation of the sigmoid valves. Hence the passage of the blood being no longer instantaneous, there does not occur in the arch of the aorta that sudden erectility, which in the normal state carries the apex of the heart forward to strike against the thorax. One case observed by M. Majendie, at the Hotel Dieu, seems to have depended on dispositions something more complicated. The patient presented, first, a complete disappearance of the second sound; second, an extreme weakness, and occasionally absence of the first sound, in place of which there was heard a rubbing sound at the instant the blood entered the aorta. The second fact is analogous to the preceding case, but it is not evident at first, on what depended the complete disappearance of the second sound: it was not from hydrothorax, for the chest sounded clear on percussion all over; it was not hydropericardium, and thus we must only suppose the existence of a pericarditis of long standing, or else a dilatation of the heart. M. Majendie attributes it to the latter. Such, says the author in

conclusion, are the clinical facts of any interest that have presented themselves to my observation since I have been engaged on the mechanism of the sounds of the heart. They are, no doubt, few, compared to those that time will furnish me with, for the shades of physical alterations of the heart are very multiplied: but however numerous, all are so easily arranged by the new theory, that they become, separately or combined, a powerful confirmation of it. My subject is not exhausted, adds the author, there remains much to be done, but time alone can furnish me the means. I must particularly examine the accidental sounds which are frequently developed in the heart and great vessels, under the influence of certain diseases, and refer them to the general laws of the production of sound. On this new and curious subject I have collected a great number of facts, the results of several experiments. I shall have the honour of presenting the result to the Academy in a separate memoir.—*Archives Generales de Medicine*, September, 1834.

Mechanism of the Sounds of the Heart, by M. Bouillaud.—M. Bouillaud has published a letter in reply to the second part of M. Majendie's memoir. In this he states that there is a triple source for the morbid sounds of the heart.

The *first cause* consists in organic changes in the lining membrane of the heart and of the valves round which it is reflected. The most remarkable of these are induration of the valves, and narrowing of the valvular openings. Now these lesions which are opposed to the free play of the valves, and offer an impediment to the flow of blood through the heart, produce the sounds resembling those of a bellows, a rasp, a saw, or a file, sometimes a whistling sound like the chirp of birds.

The *second cause* consists in lesions of the pericardium. Thus, for instance, when the opposite sides of its lining membrane have become unequal, rugged, and as it were in grooves, there is produced, during the gliding of the heart along this membrane, a *rubbing* sound, in its more advanced stage a *rasping* sound, or that noise resembling the *creaking of new leather*. Great effusions into the sac of the pericardium modify the sounds of the heart, obscure them, render them more dull, more remote, &c. &c. One case has been observed, in which a bony concretion, jutting from the surface of the pericardium, had produced a *scraping* sound.

The *third cause* consists in lesions of the muscular tissue of the heart itself, or of its lesions, by which the action of the heart against the parietes of the chest is augmented or diminished occasionally. As this percussion of the heart is sensible only during its systole, in ordinary cases it is to this latter motion that the morbid sounds of the third category belong. In these persons there has often been observed a clear silver tingling, depending on the shock of the heart against the præcordial region when the ear is applied to it.

1st. Now it is evident that the sounds of a saw, rasp, whistling,

&c., which alter so completely not only the force and intensity, but also the nature and timbre of the heart's natural sounds, and which are the effect of the first cause offered by Bouillaud, viz., that of valvular lesions, cannot be in favour of M. Majendie's system, for if it be true that the tic-tac of the heart depends on the double shock against the chest, why does it not persist as usual in lesions of this sort, in place of being replaced by the saw or rasp sounds, &c. If, on the contrary, the sawing, bellows, and rasp sounds are only modifications of the natural beat of the heart, is it not natural to suppose that the tic-tac depends on the play of the valves, and on the course of the blood through the orifices which they border, since it is to the lesions of these parts that are due the modifications pointed out by the double sound of the heart? M. Majendie says, no doubt, that it is the narrowing of the heart's orifices that hinders sometimes the first shock and sometimes the second, and that it is to this circumstance that we must attribute the absence of the first sound in the one case, and of the second sound in another. But without controverting the facts of M. Majendie, M. Bouillaud states that he has met with more than fifty cases of narrowing of the orifices of the heart, in which this organ, far from giving no *shock* against the præcordial region, gave a more forcible shock than common. Hence, M. Bouillaud thinks that we cannot bring to support the theory of M. Majendie, the morbid sounds that accompany the lesion of the valves, which he remarks, have so powerfully concurred to facilitate the diagnosis of these diseases.

2nd. The sounds that the different lesions of the pericardium produce, are far from proving that the sound of the heart is attributable to a double shock of this organ against the parietes of the chest. And to speak here only of the modifications of the sounds of the heart, in the cases of an abundant effusion into the pericardium, is it not demonstrated by a great number of facts, that these sounds are heard; weakened or remote it is acknowledged, although the heart cannot approach near enough, or as it were *percuss* the præcordial region.

3rd. The sounds of the third category next present themselves. Now in the case where the heart produces a shock strong enough to cause a particular sound, the tintement métallique, for instance, this does not prevent us from hearing the double sound of the heart. The tintement or tingling is then a sort of sound superadded, accidental, independent of the normal tic-tac of the heart? In other words, this sound is simple, occurs only during the systole, and the sound of the heart is double; consequently it is impossible to support M. Majendie's theory on the fact in question. The proof on which this celebrated physiologist most relies for the triumph of his doctrine, is the absence of the sounds of the heart in the case of considerable hypertrophy of this organ, whose volume, according to his own words, "is become such, that at no moment does there exist any distance between it and the pectoral parietes." Hence there is no shock, and consequently no sound.

M. Bouillaud agrees that if the case stood thus in all cases of hy-

perthrophy, M. Majendie's system would acquire a high degree of certainty, or at least of probability: but facts are against it, for according to M. Bouillaud, who has observed more than two hundred cases of hypertrophy of the heart, the sounds of the heart may be heard most distinctly (modified according to the complications) in their intensity, nature, or timbre, as he expresses it, "every time that the ventricles contract or dilate, that the blood penetrates them and is expelled from them, that the circulation is complete and active, that the hand applied upon the præcordial region perceives violent impulses, and that the thorax itself is sensibly raised."

M. Bouillaud deduces from the preceding arguments in his letter, that the theory of M. Majendie does not explain the morbid sounds of the heart so satisfactorily as that described in his former letter, which places the cause of the double beat in the play of the valves, and the passage of the blood through the orifices of this organ.—*Archives Generales*, September, 1834.

PATHOLOGY AND THERAPEUTICS.

Memoir on Chronic Psoitis, and on Abscess of the Psoas Muscle, by Dr. Kyll, of Wesel.—This disease, which does not present itself frequently, was formerly looked on as almost mortal, but in latter times the treatment of it has been followed by happier results. It is a disease difficult of recognition at its commencement, and may easily be confounded with rheumatism, pains of the kidneys, coxalgia, lumbago, hæmorrhoidal pains, and swelling of the glands of the groin. The liability to such mistakes renders it of importance to discover the symptoms of this disease. Commonly the march of disease is so slow at first, that one may be led into error, the more so, as there are no general symptoms, such as fever, alteration of the stools or urine, &c. and that the acute phenomena are only manifested when an abundant suppuration has formed in the psoas muscle.

The symptoms commonly assigned to this disease are the following; pain in the inferior part of the lumbar region, radiating towards the groin and thigh; tension and pain along the vertebral column; these symptoms are exasperated by flexion and extension of the thigh. The patient cannot stand on the foot, nor walk without limping, nor without stooping very much; sometimes he walks well enough in this attitude, but if an attempt be made to straighten him, he feels a smart pain; the pain is not the less violent if he strives to turn in his bed, or to raise a burden; the inguinal glands are engorged.

Of all these symptoms, few are constant, which causes the diagnosis of this disease to be so difficult. From many observations there is but one feature which belongs to the disease in a special and con-

stant manner, and by which it can be distinguished even at the beginning from all other diseases. The patient cannot walk in the upright position, he always leans a little forward, so that the thighs form an obtuse angle with the trunk; he can only straighten himself to a certain point, and he is stopped by a tearing pain which is felt at the same instant in the groin and in the loins. The swelling of the inguinal glands leads him to think, that the whole complaint is seated there, and that thence come all the obstacles to preserving the erect position. The patient goes up stairs more easily than he comes down, for to accomplish the latter he must hold himself up. To this symptom there occurs oftentimes, during several weeks and even months, a dull pain, not very intense in the lumbar region, without any other phenomena; the limb of the affected side does not always suffer particular fatigue. The patient goes on with his occupations until the symptoms become more severe, and pus is formed. Then for the first time the general phenomena present themselves.

This disease is much more common in females than in males, and among the former more frequently after lying-in. With two women the disease was attributed to one and the same cause; viz. during labour and at the moment of the passing of the child's head, and while the midwife held their thighs forcibly separated, they felt in the region corresponding to the psoas muscles, a sharp pain that has never entirely left them. They had afterwards looked on the pain as a consequence of the struggles of labour, and thought little of it. In labour the psoas muscles being strongly contracted, any force tending to separate the thighs, acts in a direction contrary to the action of these muscles; so we may easily conceive the possibility of a tearing or violent straining of their fibres.

When psoitis passes to the stage of suppuration, the pain becomes more acute and more fixed; the temperature of the part is raised; the motions of the thigh become more painful, towards evening a febrile paroxysm, preceded by shivering occurs. The ganglions of the groin become more swollen; a puriform sediment is deposited in the urine; a tumour is formed in the groin tending towards the surface, and directed from above downwards: if the abscess be opened, or opens spontaneously, the patient is seized with hectic fever and cough, followed by abundant expectoration, night sweats, colliquative diarrhœa, and he dies at length from complete exhaustion.

For the prognosis it is important to distinguish if the disease be at the right or the left side: if it be the psoas muscle of the left side that is affected, the patient is attacked with diarrhœa and colic, probably from the position of the rectum. This diarrhœa supervenes during the inflammation, and at the moment of the formation of pus, the stools are as many as twenty-four in the twenty-four hours. It resists all means administered either by the mouth or by enema, and only ceases when the abscess begins to get well. The patient is exhausted by it the more that it disturbs his sleep; fever is established

more speedily, and when the termination is to prove fatal, death is more rapid.

Hectic fever, a violent cough with expectoration, night sweats, and diarrhœa, are not always the signs of a fatal termination, for they existed in three patients who perfectly recovered.

The prognosis is in general not unfavourable, though the symptoms be very bad, five exceedingly severe cases having recovered. In the latter patients the abscess admitted of being opened below Poupart's ligament. One of them has remained lame, and two years have passed without any amelioration at the side of the abscess. Another of them has lain-in three times since her attack, without experiencing the least inconvenience.

As all these patients recovered, there was no means of ascertaining whether the disease had its seat in the lumbar vertebræ, the psoas muscle, or the surrounding cellular tissue.

In the treatment of this disease we must try to dissipate the inflammation, though the best directed treatment very seldom succeeds; except in one case, bleeding, leeches, calomel, cold applications, mercurial frictions, blisters, cauteries, and confinement to bed, have all failed.

When suppuration is formed, which is announced by shivering, followed by fever in the evening; oatmeal poultices are placed over the inguinal region; phillandrium aquaticum (water hemlock) is prescribed internally, at that period the urine contains an abundant puriform sediment. When the abscess is perceived under the skin, and that the fluctuation is evident, M. Kyll opens it freely just below Poupart's ligament, and keeps it open until the cure is complete. Prepared sponge is the best medium for keeping the incision open; poultices placed above the incision have not been sufficient to keep the wound open, nothing answering so well as the prepared sponge. This method of opening the abscess is preferable to that of Abernethy, as it prevents the infiltration of pus under the fascia lata.—*Ibid.*

Affection of the Heart exasperated by Antiphlogistic Treatment, and cured by the Employment of Subcarbonate of Iron.—This affection occurred in the case of a young man æt. twenty, who was attacked for the first time with pain in the side, with palpitations, for which he was bled, and though the quantity was small he fainted frequently, from the effects of the bleeding; the respiration became embarrassed; violent headach set in with something like convulsive shocks in the brain: bleeding and leechings were employed for three weeks, with the most austere regimen imaginable. He was unable to make two steps in ascending a staircase, the beats of the heart being at least 120 a minute. He was confined to the horizontal position for three months, and in that space of time was bled *thirty-two times*, the greatest quantity at each bleeding was two pounds, the least half a pound. In the above period there were about 250 leeches applied;

the diet was a few cherries or strawberries, and an ounce of sugar with a glass of water per day. At the end of three months, he was in the last stage of marasmus; the pulse scarcely to be felt, and the slightest alteration of the thermometer causing in him (as in the cold blooded animals) the greatest agitation. After being in this state five months, Dr. Pigeaux treated him with two grains of subcarb. ferri eight times a day, increasing the dose gradually to a drachm a day; under this treatment the patient recovered.—*Archives Generales*, Oct. 1834.

Hydrated Tritoxyde of Iron, an Antidote to Arsenic.—Hitherto there has not been found any antidote against poisoning by arsenic; that is, there has not been found any substance capable of decomposing the oxides or arsenical salts, without giving rise to a new compound poisonous itself. Dr. Bunsen of Göttingen has just discovered that the hydrated tritoxycle of iron is an antidote to arsenic, and expresses himself respecting it in the following terms.

“For a long time I have been led to the observation, that a solution of arsenious acid is so completely precipitated by pure hydrate of iron recently precipitated, and suspended in water, that a current of sulphuretted hydrogen directed through the filtered liquor, in which there is contained a small quantity of hydrochloric acid, does not point out the least trace of arsenious acid. I have found, besides, that if there be added to this body a few drops of ammonia, and it be digested with a gentle heat with arsenious acid reduced to very fine powder, it very gently transforms this latter substance into combination (*arsenite basique*) with tritoxycle of iron completely insoluble. A series of observations founded on this, has given me the firm persuasion, that this body reunites the most favourable conditions for serving as an antidote to arsenious acid, whether solid or in solution. Dr. Berthold has joined me in examining this subject in all its forms, and in making the most rigorous experiments on it. The results of this examination have surpassed our most anxious expectation, and has confirmed us in the persuasion, that the hydrate of the tritoxycle of iron is a better antidote for arsenious acid, solid or in solution, than albumen is for corrosive sublimate.

“Young dogs, not more than a foot high, to which we had given from four to eight grains of arsenious acid, very finely powdered, and whose œsophagus we had tied to prevent vomiting, have lived more than a week, without offering either symptoms during life, or appearances on a post mortem examination of poisoning by arsenic. The excrements, which were in very small quantity, seeing that the animals took neither food nor drink, contained almost the whole of the poisonous substance, in the state of an arsenite (*basique*) of the tritoxycle of iron, but presenting no trace of free arsenious acid. We convinced ourselves by experiments upon animals, that a quantity of the hydrate of the tritoxycle of iron, varying from two to four drachms, with sixteen drops of ammonia, are sufficient to transform, in the stomach, from eight to ten grains of well powdered

arsenious acid, into an insoluble arsenite. It is easy to conceive that we might, in cases of poisoning by arsenic, administer this substance in much more considerable doses, with or without ammonia, by the mouth or in the form of enema, since the hydrate of the tritoxide of iron, being completely insoluble in water, absolutely exercises no action on the animal œconomy."*—*Archives Generales*, Oct. 1834.

SURGERY AND MIDWIFERY.

Hernia of the Bladder.—In a memoir published by M. Mondière, on the mistakes occurring in the diagnosis of herniæ, we consider the following account of hernia of the bladder to be important as well as rare.

Hernia of the bladder is a subject of which the diagnosis has been hitherto very imperfect, and has given rise to many mistakes more or less injurious. It has ever been confounded with hydrocele. Merry committed this error, but it was only for a moment, for the presence of urine soon discovered the true nature of the disease. Pott rescued a child from the painful operation of supposed scirrhus testicle—the real disease being a hernia.

It will be always easy to recognize the nature of the disease, by compressing the tumour, and causing the liquid contained in it to return to the bladder, which will create a desire to make water. It was by the aid of this symptom that the error of which we speak has been avoided by Beaumont, Le Petit, Le Pere, and Verdier. But if, as Bertrand has seen, the portion of the bladder that forms a hernia, through the inguinal ring, is compressed there, so that the urine contained in it cannot repass into the abdomen, it is then possible to mistake this affection for an encysted hydrocele, and the signs can alone hinder us from falling into the error. It is also in cases of this sort, that the urine not returning into the cavity of the bladder has given rise to the formation of calculi more or less voluminous, and which, from the volume and hardness, have been mistaken for other diseases. Verdier informs us, that a calculus thus shut up in the hernial portion of the bladder was mistaken for a bubo, that the surgeon employed caustic, and the falling out of

* From some experiments on the above subject, made by Mr. Kane, it would appear that further investigation is necessary before the conclusions of Dr. Bunsen can be recognized as perfectly correct. On digesting recently precipitated peroxide of iron in a solution of arsenious acid, for several hours, and at different temperatures, the liquor filtered, in all instances, contained much arsenic. The mixed proto and peroxides of iron were also tried, and found equally inefficacious in the complete removal of arsenious acid from its solution.

the eschar was followed by a fistulous opening from which the urine continued to pass. Nearly two centuries before, John Dominica Sala had a patient tormented by symptoms of stone, which could not be discovered by the sound, and which was found after his death in a portion of the bladder that had passed into the scrotum. Stalpast Vanderwiell cites several facts more or less analogous.

Let us point out some of the chief errors to which hernia of the bladder has given origin. Plater having been called to a fisherman afflicted with retention of urine, which had withstood every remedy, attributed his symptoms to a tumour which occupied the scrotum, and extended to the groin. He cut into it, and immediately the discharge of a great quantity of liquid gave relief to the patient. The tumour had been formed by the bladder. In one individual who died three days after the operation for lithotomy, and who had a hernia of the bladder, the portion of the pouch stragulated by the inguinal ring was gangrenous; the remainder of the bladder, which was but small, was healthy. It is probable that the symptoms resulting from stragulation of the bladder, were the consequences of the operation.

M. Aussendon, while assisting a woman in labour, discovered at the orifice of the vulva an elastic tumour, which he took at first for the sac containing the waters of the amnion. But soon perceiving that the tumour did not change its station, he made a closer examination, and found that the tumour was a vaginal cystocele that had formed suddenly. All the urine contained in the tumour was drawn off by the urethra, and the tumour was then reduced with care, and the labour terminated favourably. Robert, a surgeon of Lille, had observed the same sort of case long before M. Aussendon, but he avoided all mistake, inasmuch as the woman experienced frequent desire to make water, accompanied with pain, that the tumour did not proceed from the orifice of the matrix, and that it was not attached to the whole circumference of the vagina, but only to that portion which corresponds to the pubis. If error was avoided in the preceding observations, it was not so in a case recorded by the celebrated Chaussier, and in which the hernia of the bladder was taken for the head of a child, and the pains for the signs of a labour about to recommence, (the woman had been delivered a few days previous.) The surgeon for some time made many inconsiderate manœuvres on the tumour, and thinking the head of a prodigious size, was on the point of opening it for the purpose of extracting the child, when Chaussier arrived and recognized the disease. M. Brun relates the following case: a young lady had been for some years subject to colicky pains, which disappeared generally quickly, sometimes suddenly. Whenever she had an attack of colic she made but little water, without, however, having retention, and when she got rid of the colic she made water abundantly. As often as the latter was plentiful she was sure that the colic and tumour would both disappear. Notwithstanding these symptoms, she continued for eight years under the care of physicians and surgeons, who never were

aware that a hernia of the bladder existed between the umbilicus, the crest of the ilium and false ribs. This mistake was of no other inconvenience than prolonging the sufferings of the patient, who was quickly relieved when the nature of the disease was found out. In another case the tumour was supposed to contain pus, and was extensively opened.

The complication of an entero-epiploic hernia, with one of the bladder, may prevent the latter from being recognized. A case of this description is mentioned by M. Ribell, of Perpignan: the patient had been thirty years treated for dysuria, depending on a cystocele, and which was attributed to a pretended tumour attached to the urethra and neck of the bladder. There was congenital hernia of the left side—a reducible hernia of the right side—the congenital hernia grew to a large size, and was complicated with that of the bladder, after which the symptoms of dysuria made their appearance. M. Ribell perceived that the greater the volume of the hernia, the greater was the dysuria; that if the patient required to make water when the hernia was small, that it came away easily, and in a jet; and that if while making water the hernia escaped or grew larger, the jet of urine was suddenly checked; besides the patient had learned that by raising the hernia, so that the neck should be the lowest point, he always passed a greater quantity. M. Ribell also observed, that when the patient retained his urine for four hours, and remained all that time standing, the catheter drew off but a few spoonfuls, yet when the hernia was reduced, it flew away spontaneously. He then injected about six ounces of water into the bladder, which increased the volume of the hernia considerably, though the patient lay in the horizontal position; and the neck of the tumour presented an evident fluctuation. Unfortunately the patient derived no benefit from this well established diagnosis, on account of the adhesions that the bladder had contracted; adhesions, the existence of which was sufficiently established by the impossibility of entirely reducing the hernia, and by the uninterrupted persistence of the dysuria.—*Archiv. Generales*, Sept. 1834.

Case of Procidencia Uteri successfully treated by Operation. (Communicated by Dr. Ireland.)—Mary Shields, an housemaid, aged about 50, healthy and of active habits, was admitted into the Anglesey Lying-in Hospital, on the 17th November, 1834. About three years since she perceived, during active exercise, that a small tumour pressed down through the vagina: this gradually descended and increased in size, so that at length, on making the slightest efforts, the tumour protruded five or six inches beyond the os externum. When in the horizontal posture she could return this tumour by pressure with her fingers, but when the erect posture was resumed, the prolapsus re-appeared. Little pain or inconvenience was suffered, except when walking, until eight months since, when this tumour, which proved to be a prolapsed uterus, could no longer be returned by the means she had formerly resorted to. During these last eight

months she has suffered considerable distress from a sense of "bearing down," and a discharge from, and ulceration of the surface of the tumour; walking gives great pain. She now became unable to undertake any active employment, and determined on seeking for assistance. On examination, along with Mr. Hayden, I perceived a procidentia uteri, the tumour being of a conical form, measuring in the recumbent posture about five inches; the os uteri was the apex, the basis was at the os externum, and the surface of the tumour was formed by the inverted mucous membrane of the vagina, which was rendered prominent and convex anteriorly, and posteriorly by the presence of the bladder and rectum in those situations. It need scarcely be remarked, that procidentia uteri, to the above extent, must have caused inversion of the vagina, and dislocation of the bladder and rectum in the axis of the outlet of the pelvis; the lining membrane of the vagina now forming the outermost covering of the three pelvic viscera. I observed to Mr. Hayden, that as the woman was so desirous to obtain a radical cure, this might be effected by the ingenious plan devised by Dr. Marshall Hall, a successful case of which has been cited in Dr. Henning's translation of Madame Boivin's work on Diseases of the Uterus.

The following quotation will be found in page fifty-three of this work, "Dr. Marshall Hall has lately cured a case of complete prolapsus uteri, by artificial contraction of the vagina: a strip of the mucous membrane, an inch and a half wide, was removed along the whole of the canal, and the wound was sewn up. We hear nothing of hæmorrhage, and are assured that the patient suffered neither pain nor fever after the operation."

In a note it is stated by the translator, in reference to hæmorrhage, "there was scarcely any, and that the patient was examined by Mr. Vincent, surgeon to Bartholomew's Hospital, at the beginning of November, 1833, two years after the operation, and the uterus and bladder were found perfectly supported in their proper situation."

Now to return to our case: the lining membrane of the vagina was ulcerated to the extent of about two inches on the anterior part of the tumour, near to the os uteri, the remainder of this membrane presented more the appearance of cutaneous than mucous structure, owing to its long exposure to atmospheric influence; the effects of which on the mucous membrane, in this disease, and also in prolapsus ani, are sufficiently known. Some difficulty has been experienced in emptying the urinary bladder.

The bowels rather constipated. The catamenia ceased about four years since; she has been married several years, but never was pregnant; her general health has been excellent; she was directed to remain in the recumbent posture; the bowels to be kept open by mild aperients; the tumour to be fomented with a solution of acetate of lead, in decoction of poppy heads, and an emollient poultice to be applied to the ulcerated surface of the protruded mucous membrane. This treatment was continued up to the 24th instant, when the

case was seen in consultation by Dr. O'Beirne, Dr. Churchill, Mr. Hayden, and myself.

The foregoing soothing treatment had somewhat alleviated the sufferings of the patient ; but she has appeared, since her admission into hospital, to be desirous that something more decided should be at once undertaken. An operation was determined upon, and assisted by the above mentioned gentlemen I dissected a slip of the mucous membrane of the lateral portion of the vagina, about an inch and a half wide, extending the whole length of the tumour, from the os uteri to the os externum. The incisions were nearly parallel, except at the commencement and termination of each, where they suddenly converged. Some difficulty was experienced in detaching the thickened mucous membrane from the subjacent structure ; the hæmorrhage was trifling. One vessel which bled smartly, was commanded effectually by torsion.

The sides of the wound were now brought into apposition, by four points of interrupted suture, and the uterus was readily returned by moderate pressure to its natural position ; the patient was agreeably surprised that she suffered pain only at the commencement and termination of the operation, the sensitive parts being near the os uteri and os externum. Immediately after the operation, half a pint of cold water was injected into the rectum, and the same quantity into the vagina, with a view to obviate hæmorrhage ; none whatever occurred.

30th November. The patient has not had a single bad symptom, no constitutional irritation, local pain, uneasiness, or hæmorrhage ; the only thing prescribed was a single dose of lenitive electuary to open the bowels ; rest in the horizontal posture has been enjoined ; all the parts retain their natural position. The bladder and bowels emptied with perfect ease.

15th December. Nothing remarkable has since occurred ; examination has been several times made *per vaginam* ; the os uteri retains its natural position ; the ligatures can be distinctly felt, none have been detached.

The patient, at her earnest request, (feeling bed very irksome), has been allowed to sit up these several days, without its producing any tendency to prolapsus ; she says that she is perfectly free from "bearing down," and all the unpleasant symptoms which were before experienced. We were induced to resort to the operation in the foregoing case, owing to the success that had attended the plan adopted by Dr. M. Hall, and from considering the insufficient relief obtained, and the irritation excited by wearing a pessary. Again, this poor woman was desirous of undergoing any operation that would render her capable of undertaking active employment, upon which she had to depend as the only means of her future support. Little pain or hæmorrhage attended Dr. M. Hall's case during the operation ; no fever, no local distress whatever occurred in the after-treatment, and the most complete success was ultimately the result.

The performance of the operation in the lateral portion of the vagina, and the dissection of the slip of mucous membrane, from the os externum to the os uteri, would appear to me a safer and easier operation than the mode pointed out in Dr. M. Hall's case. Safer, as the operation would be performed between the bladder and rectum; and easier, as the mucous membrane can be readily raised when an assistant draws down, and fixes the tumour by a sufficient hold of its interior extremity, which cannot be effected, if the dissection be commenced at the latter situation, without putting the patient to the pain of introducing a hook into the most sensitive part, near to the os uteri.

On Wounds of the Neck, by Dr. Dieffenbach.—We extract from the October number of the Archives Generales, the following conclusions of Dr. Dieffenbach, on wounds of the neck, taken from Rust's Magazine:

First. Simple wounds of the neck, in which the skin only is concerned, very seldom heal by the first intention. Wounds of the neck, when they do not penetrate the air passages, may cause death, by the suppuration of the cellular tissue, and infiltration of pus.

Second. Small penetrating wounds of the air passages are often mortal, wide wounds dividing the trachea; and the air passages, on the contrary, often heal.

Third. Suture is useless, as it augments the irritation and inflammation, and favours the flowing of pus into the air passages.

Fourth. Suture is very hurtful in large wounds of the trachea, the development of granulations bring the divided edges together.

Fifth. The reunion of the skin over a wound of the trachea, the latter also being united by suture, is an operation that should be rejected.

Sixth. The reunion of the skin over an open wound of the trachea, ought also to be rejected, because the pus and blood flow incessantly into the bronchial tubes.

Seventh. The hood used for fixing the head in a suitable position, is a hurtful and painful bandage.

The best treatment is the following: For wounds of the skin, a simple reunion by adhesive materials, (*agglutinatifs*): in wounds in which the trachea or larynx are concerned, there should be no bandage; but instead, let there be fomentations, and let the wound be frequently well washed; and in lieu of any apparatus of restraint, there should be two persons, whose constant employment is to moderate the irregular motions of the head; most vigorous antiphlogistic treatment, mucilaginous drinks, and narcotics. When the first danger is over, and that suppuration is established, it will be necessary to arrange the dressings, so that the wound in the trachea may always remain free. Every thing should be removed from the orifice.—*Archives Generales*, Oct. 1834.

Hydrocele in Women.—At a meeting of the Royal Academy of Medicine, M. Regnoli read a memoir on this subject. He distinguishes five varieties of it.

First. Œdema of the cellular tissue of the round ligament corresponding to œdema of the spermatic cord in men.

Second. Hydrocele of the canal of Nuck; the latter communicating with the peritoneal sac, is similar to the congenital hydrocele in men.

Third. Hydrocele of the canal of Nuck, without communication with the peritoneum.

Fourth. Encysted hydrocele of the round ligament.

Fifth. An accumulation of serum in a former inguinal hernial sac obliterated at its neck.

M. Regnoli gave a complete history of all these varieties, and related observations from various authors, and from his own practice; amongst others, was one case of encysted hydrocele of the round ligament, which he treated successfully by incision.—*Revue Médicale*, Oct. 1834.

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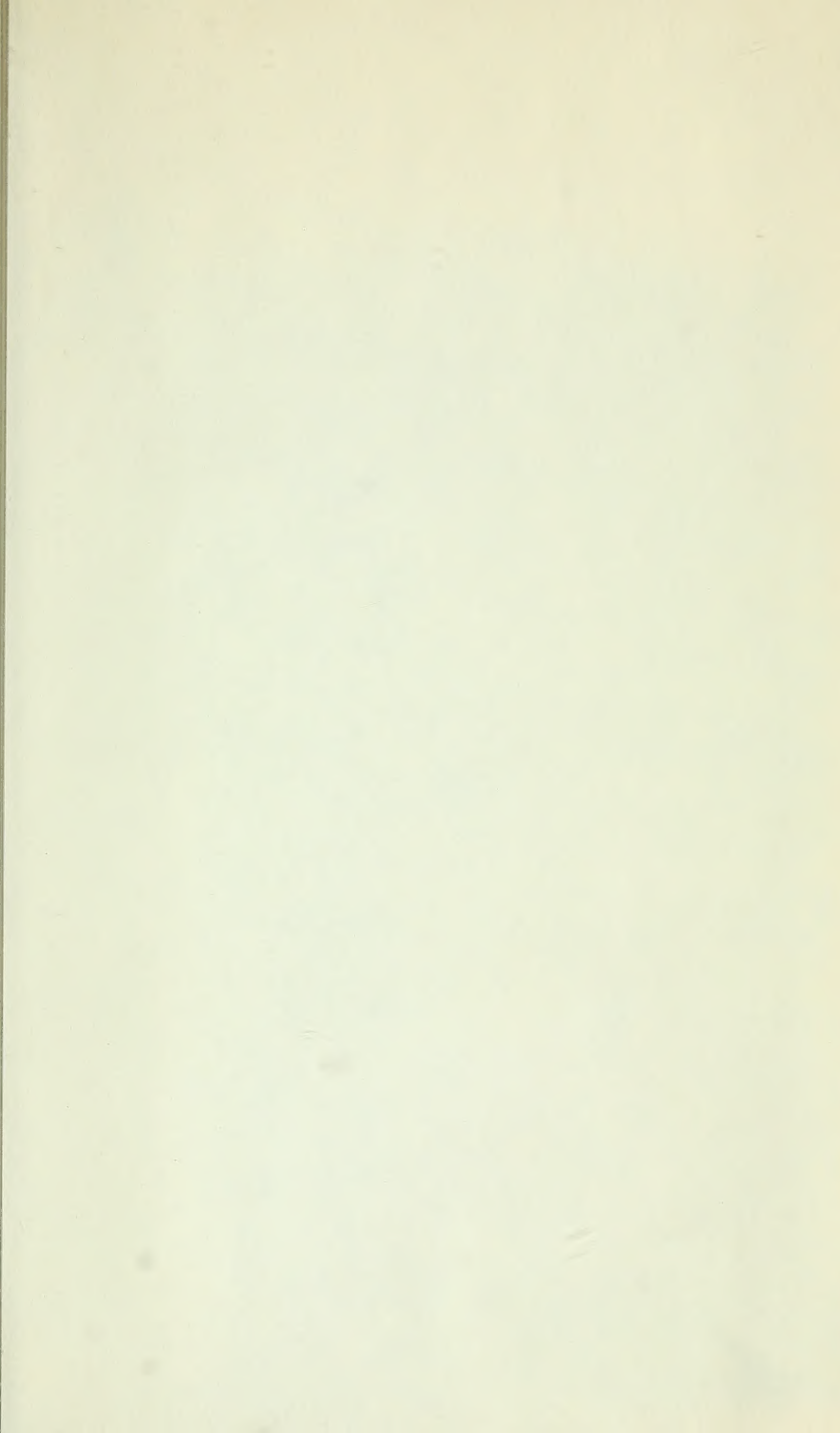
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